THE ENGINEERING AND MINING JOURNAL AND COAL

(Published Every Saturday at 253 Broadway, New York.)
Entered at the Post-Office of New York, N. Y., as Second Class Mail Matter.

VOL. LXX. JULY 14, 1900. No. 2.

RICHARD P. ROTHWELL, C. E. M. E., Editor.
ROSSITER W. RAYMOND, Ph. D., M. E., Special Contributor.
THE SCIENTIFIC PUBLISHING CO., Publishers.

SUBSCRIPTIONS ARE PAYABLE IN ADVANCE. For the United States, Mexico and Canada, $5 per annum; all other countries in the Postal Union, $7.
REMITTANCES should be made by bank drafts, post-office orders or express money orders on New York, payable to the Scientific Publishing Co.
When change of address is desired, both old and new address should be sent.
NOTICE OF DISCONTINUANCE. The JOURNAL is not discontinued at expiration of subscription, but is sent until an explicit order to stop is received by us. We find that a large majority of our subscribers prefer not to have their subscriptions interrupted and their files broken in case they fail to remit before expiration. It is therefore assumed, unless notification to discontinue is received, and the amount of back subscription paid to date, that the subscriber wishes no interruption in his series. PAPERS RETURNED ARE NOT NOTICE OF DISCONTINUANCE.

Main Office: 253 Broadway (P. O. Box 1833), NEW YORK.

Telephone Number, 3,095 Cortlandt.
New York Cable Address—"ROTHWELL." (Use McNeill's or A B C 4th Edition Code.
London Cable Address—"PULCINETTO." " " "

Branch Offices:
Chicago, Ill 737 Monadnock Building, Phone 73 Harrison.
Denver, Colo., Boston Building, Room 206.
Salt Lake City, Utah, Atlas Building.
San Francisco, Cal., Third Floor Mills Building.
Vancouver, B. C., Office, Molson's Bank Bldg. Wm. M. Brewer, Manager.
London, Eng., Office, 20 Bucklersbury, 368. E. Walker, Manager.

English subscriptions to the JOURNAL may be paid at the London Office at the rate of $7 = £1 8s. 9d.; the publications of the Scientific Publishing Company may be bought at the rate of 4s. 2d. to the dollar, net.

CONTENTS.

	Page
Editorial Notes	31
The Silver Market	32
New Publications	32
Books Received	32
Correspondence	32
The Panuco Copper Company	33
* Hamilton Smith	34
British Columbia—Progress on Vancouver and Texada Islands, W M. Brewer,	34
Placer Mining in the Southern Ourals . . . . . Charles Tappan,	35
Thr Testing of Flat Placer Deposits	37
* The Purchase of Zinc Ores in the Joplin District, W. George Waring	38
International Petroleum Congress at Paris	39
The International Congress of Mining and Metallurgy at Paris	40
Recent Decisions Affecting the Mining Industries	41
Abstracts of Official Reports	42
* Sinking Through Quicksand at an Austrian Colliery	43
Mineral Collectors' and Prospectors' Column	44
Questions and Answers	44
* Patents Relating to Mining and Metallurgy	44

* Illustrated.

Personal	46	Virginia	50	New York	53	**Dividends**	56
Obituary	46	**Foreign:**		Gold and Silver Prices, Statistics, Imports and Exports	53	**Meetings**	56
Societies and Technical Schools	46	Asia	51	Foreign Coins	53	**Assessments**	56
Industrial Notes	46	Australasia	51	Copper	54	**Stock Quotations:**	
Trade Catalogues	46	Canada	51	Tin	54	New York	57
Machinery and Supplies	46	South America	51	Lead	54	Philadelphia	57
Mining News.		**Markets.**		Spelter	54	San Francisco	57
United States:		**Coal:**		Antimony	54	Boston	57
Alaska	47	New York	51	Nickel	54	Salt Lake City	57
California	47	Birmingham	51	Platinum	54	Toronto	57
Colorado	48	Chicago	51	Quicksilver	54	Spokane	57
Idaho	49	Cleveland	51	Minor Metals	54	Colo. Springs	58
Indiana	49	Pittsburg	51	**Chemicals and Minerals;**		Montreal	58
Minnesota	49	Shanghai	51	New York	55	Mexico	58
Missouri	49	**Slate:**		Liverpool	55	Denver	58
Montana	50	New York	51	**Mining Stocks.**		Paris	58
New York	50	**Metals.**		**Market Reviews:**		London	58
Oklahoma	50	**Iron:**		New York	55	**Mining Co's,**	
Pennsylvania	50	Pig Iron Production	52	Boston	53	List of	79
South Dakota	50	Birmingham	52	Colo Springs	56	**Current Prices:**	
Utah	50	Buffalo	42	Portland	56	Minerals, Chemicals, etc	60
		Chicago	52	San Francisco	56		
		Cleveland	52	London	56		
		Philadelphia	52	Paris	56		
		Pittsburg	52				

Alphabetical Index to Advertisers . . . . . Page 21
Classified List of Advertisers . . . . . Pages 14, 15, 16, 17 18

The Index to Volume LXIX. of the "Engineering and Mining Journal" accompanies this issue, and subscribers should receive it with their papers. The size of this Index, which contains about 8,900 titles and 25,000 page references, is a fair indication of the extent and variety of the material which the "Journal" offers to its readers with each half-yearly volume.

The Semet-Solvay by-product coke ovens, which were built at Ensley, Ala., some time ago, have been so successful in their work that it has been decided to double the size of the plant by building 125 new ovens, work on which is to be begun at once. The Alabama coke makers have recognized the advantages gained by the use of these ovens, and their use, it is expected, will extend to other points in the South. In connection with these ovens also a plant is to be established for the purpose of working the by-products into various forms for the market.

At the present time when so much attention has been drawn to Russian mining enterprises, the paper on "Placer Mining in the Southern Ourals," given on another page, will be found of interest. The Oural gold mines have been described before with reference to their geology and general conditions, but never, we think, with so much detail with regard to methods of working and labor conditions. The peculiarities of the Russian people and the provisions of the mining law, as explained in the paper referred to, are all of importance to those who may have enterprises in the Empire in view.

In the discussion on Mineral Statistics at the Congress in Paris several speakers expressed the opinion that the general adoption of the metric system would be a great step toward securing a general standard system of statistics. This is the opinion which has long been held and expressed by the "Engineering and Mining Journal," and which has been put into practice in "The Mineral Industry." The adoption of one system is indispensable if we are to make comparisons of the mineral statistics of different countries; and the metric system is now so generally used that it has far stronger claims that any other. This fact was generally recognized at the Congress, and it ought to have weight elsewhere.

The Alabama coal miners, fortunately for all parties, did not force their demands for an increase, and the dispute with the operators was quickly settled by an agreement to continue for another year the contract, which expired July 1st. As explained last week, the mining rate in Alabama is based on the selling price of pig iron, and the point at issue was not a change in this respect, but an increase in the base rate. The operators believed that this increase was not possible under present conditions, and the men finally acceded to their view. The general stoppage on July 1st, when the contract expired, lasted only a few days. While the definite figures have not been made up, it is certain that the output of coal in Alabama for the first half of the year was the largest ever known, and for nearly all the time the miners have received higher wages than ever before.

In his paper on the Utilization of Blast Furnace Gases, read at the Congress in Paris, M. Hubert estimated the saving effected by the plant at the Cockerill Works, under the present conditions in Belgium, at 8 francs—over $1.50—per ton of pig iron made. This is about 12 per cent. of the cost, a most important economy. In the discussion it was said that this saving would permit the introduction of other improvements, such as means for drying the blast; thus taking up a suggestion made some time ago by Dr. W. B. Phillips in the "Engineering and Mining Journal." How this work at Seraing and in Germany has been watched and how ironmakers there have appreciated its importance, is shown by the statement that the engines already contracted for, to run by blast furnace gases, will furnish a total of 18,000 horse-power; while more orders are constantly being received. It was also stated that a large blast engine, similar in construction to that at Seraing, has been ordered for a blast furnace plant in the United States, so that we may soon have a working example in this country.

The report of the proceedings of the International Congress of Mining and Metallurgy in Paris is concluded on another page of this issue; though we shall present abstracts of the more important papers read at an early date. The subjects which attracted most attention were the applications of electricity to mining work; the utilization of waste gases in blast furnace work; and the establishment of uniform standards for mining statistics and reports. On these points the longer and more interesting discussions were drawn out, and the interest of the Congress was actively shown. On mining at great depths papers of much value were read, but there was much less discussion. Upon the whole the work of the Congress was good, and likely to be of some permanent

value. It was decided to hold meetings hereafter at regular intervals of three years, which will involve the establishment of a permanent bureau in much the same as the International Railroad Congress supports one. The next meeting will be held at Liege, in Belgium, in 1903. This meeting will lack the attractions presented this year by the Exposition, but it should be largely attended.

The rush to the Nome District in Alaska and the peculiar conditions existing as to claims there have resulted, as might have been expected, in a state of lawlessness for which only one remedy could be applied. From the brief accounts so far received, it seems that force was about the only rule recognized by many of the newcomers. Beach claims were held or seized by violence, and no respect paid to such rights as those who held or worked them might claim. The conditions were so bad that the United States Army officer commanding the district saw no resource except to declare martial law and to enforce it with all the power he could bring to bear. In this way some sort of order could be maintained, though the many questions arising about mining rights cannot be settled, and must be postponed, probably for some time. Under these conditions the situation of new arrivals seems to be most unfortunate; most of them will be able to do little or nothing, and before long a large proportion will be ready to leave in any way they can. It is fortunate that, while a great many people have gone to the north, the number has been much less than was at first expected, or than the transportation companies tried to secure. What effect the present discouraging news will have on those who intended to go is uncertain. Probably the greater part of them have already started, and it is too late for them to turn back.

THE SILVER MARKET.

The recent rise in the price of silver has caused a good deal of comment, as well as of conjecture as to the future course of the quotations. In some quarters there is disposition to regard the rise as largely speculative, or, perhaps, due to the action of parties controlling a large share of the output of the metal; but for this view there seems to be but little foundation. There has been some speculative interest in the market, but not enough to exercise any marked influence on quotations; and while sellers naturally watch conditions closely, there has been nothing like concerted action on their part for an advance. The rise has been due to an active demand for the metal, the causes for which can be explained with little difficulty.

There has been, as we noted some time ago, an increase in the demand for silver for industrial purposes. This is the result in part of the low prices which have prevailed for several years, but in greater degree of the general prosperity of the past two or three years. Business has been good, the world has been busy, and has had a surplus to spend; so that there has been a demand for the articles of use and ornament in which silver forms an important part.

This industrial demand, however, though of importance, is not of itself enough to cause a rise in prices. This is mainly due to the demand for the metal in the East, especially in India and China.

The quantity of silver taken for export to India in the first half of the year showed an increase of 25 per cent., which was mainly due to the purchases of the metal which were forced on the Indian Government. When the coinage of silver was discontinued in India seven years ago, the reserve which the Government maintained against its circulating notes was largely in silver rupees. As this reserve was drawn upon it was replaced by gold, under the policy adopted by the Government. India is a poor country, however, and the great bulk of the business transactions among its people is in amounts too small for any gold coin that might be issued; and gold coin does not circulate at all in the country. Even the hoards of the people are usually too small for gold, and by necessity as well as by custom they are in silver. The demand for coined rupees continued steadily and the reserve in the Indian Treasury was drawn down so low that the Government became alarmed at its small amount. When the necessarily large expenditures for famine relief were added, the situation became alarming. The Government was forced to give way, and to order a large coinage of silver rupees. The amount of this new coinage has not been made public; but as the purchases of silver continue, it may be inferred that a limit has not been reached.

Besides this Government demand, the private purchases of silver for India have continued as large as usual. It has been noted heretofore that in famine years sales of silver to India do not fall off, as might be expected; and this has been the case during the present year.

For China the demand has been on a different basis. The shipments to that country for the first half of the year have been nearly double those of last year. This has not been due to any great increase in trade, but to the fact that European nations—especially Russia—have been spending large amounts in China for railroad building, mine explorations, improvements of ports and other works, and their payments have been largely made in silver. The demand thus created had to be met by purchases in the open market, and these have been a factor quite as important as the Indian buying in maintaining prices. The demand for China is likely to continue and may be increased rather than diminished by the present state of affairs there. If, as seems probable, large foreign forces are to be kept in the country for some time, payments must be made for their subsistence and other purposes which will be very large in the aggregate; and for these payments silver must be had.

Upon the whole it appears probable that the demand for silver will be large for some time to come, and that the metal will command high prices—high, that is, in comparison with those which have been the rule for several years past.

NEW PUBLICATIONS.

"Annual Report of the Minister of Mines of British Columbia for the Year 1899." Smith Curtis, Minister of Mines; William Fleet Robertson, Provincial Mineralogist. Victoria, B. C.: Government Printer. Pages, 890; with maps and illustrations.

We have heretofore summarized the very full reports of British Columbia production given in this report. In addition to these statistics Mr. Robertson has collected a great deal of information about the conditions of mining in British Columbia and about the different districts and the more important mines. The report is, as usual a very creditable one, and will be very useful to the miners of the Province, as well as to investors who are, or expect to be, interested in its mines.

BOOKS RECEIVED.

In sending books for notices will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

"Wealth and Progress of New South Wales." By T. A. Coghlan. Twelfth Issue. Sydney, N. S. W.. Government Printer. Pages, 1,048; with map.

"The Occurrence and Origin of Diamonds in California." By H. W. Turner. Reprinted for the Author from the "American Geologist." Pamphlet; pages, 10.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials will only be published when so requested.

Letters should be addressed to the MANAGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

The Panuco Copper Mine Deal.

Sir: With reference to the article in your number of date under the heading of "The Panuco Copper Mine Deal," as you apparently take some interest in this matter I venture to enclose a summary of the statement of affairs, in which are included sundry observations. This document has been issued by the official receiver and liquidator to the shareholders, and it will give you clearly the facts of the case. I should also like to correct an impression which your article conveys, namely, that Mr. C. W. Fielding was connected with the floating of the Panuco Copper Company. Mr. Fielding retired from partnership in the firm of Saunders, Fielding & Carlton some years ago, and until the Panuco Copper Company, Limited, was organized he was not connected with it in any way. The tone of your article and the strictures you pass on the issuing house would seem to imply that it is a rule that mining enterprises turn out favorably, or, at all events, there is little excuse for any other result. I venture to suggest that this is the exception and that, notwithstanding the great advance science has made and the more thorough investigations which are now possible, the old Latin proverb, "Errare Est Humanum" still holds as good to-day as it did 3,000 years ago; and it is melancholy to note at the end of the 19th century that such charges should continue to be made on apparently only too good grounds of salting mines and tampering with samples.

N. M. Macdonald.

New York, June 30, 1900.

(The report of the official liquidator, to which our correspondent refers, will be found on another page.—Editor E. & M. J.)

The Ohio Steam Engineers' License Law.

Sir: There have been many criticisms made of the recent Ohio license law for engineers and its incompleteness at this time. Some writers say it is not what it should be. I do not believe any thoughtful engineer or friend of the law will contest the assertion, but the mere fact that such a law, incomplete as it may be, has passed the legislature, is a very important step toward covering the object in view. A great victory was won when a law of any kind passed, and the little omissions, inequalities and defects will no doubt be covered by amendments from time to time. The main object of eliminating the dangers surrounding the steam boiler and engine is partially covered by any law that will necessitate an examination by proper authorities and will stop the choosing of engine runners, water tenders, and firemen at haphazard from the common labor class of men.

When one thinks for a moment of how many men are to-day running engines and boilers who could not, if an emergency call should occur, do the proper thing, and the possible consequences resulting from a careless move if some ignorant help of this kind (I will not say "engineer"), one is appalled at the dangers surrounding a manufacturing

plant and the loss of life that may at any moment bring misery to so many families of workmen.

Only a short time ago I had occasion to visit a large iron manufacturing plant and one of the engines had given out; cause, no oil on bearings, babbitt run out and a wreck. The master mechanic asked the driver about it—a Pole who could barely talk English—and by inquiry found the man did not know what the various oil holes were for, and only used the two glass lubricators which happened to be on the engine, because the others had been broken off or removed. I believe we ought to keep the good work going; and I hope to see all States requiring the same examination to be gone through, after which, no doubt, we will see a better class of people in responsible places and the fatalities resulting from boiler explosions, engine break-downs and fly-wheel bursting reduced to a minimum.

H. F. E. Ganun.

Coatesville, Pa., July 7, 1900.

The Commercial Production of Oxygen.

Sir: I observe in a cutting from one of your issues an account of a paper read before Section C of the American Association for the Advancement of Science, Boston meeting, 1898, by Romeyn Hitchcock, on a new method for the commercial production of oxygen, patented by Prof. Ernest B. Stuart. I shall be glad if he could give still further information with regard to this process, because I have made a most careful series of experiments for one of my clients who desired to work this patent with a view to preparing oxygen on a large scale, and have utterly failed to get any practical result. I have used the mixture of manganese dioxide and caustic soda in the proportions he gave at various temperatures, such as a low and a bright red heat, and passed air at these temperatures through the molten mass. As an example of the working I analyzed the air after passing through the molten liquid to find what amount of oxygen had not been absorbed and found that it had only lost at first 1.4 and ultimately 0.2 per cent. after continuously blowing red-hot air through the molten mixture for 3 hours. On then passing highly superheated steam through the oxidized molten mixture I got a total of 33 c.c. of oxygen from 160 grammes of the mixture.

I then made an experiment with the mixture suggested by Tessier du Motay as follows: Equal parts by weight of caustic soda and manganese dioxide were mixed and heated to dull redness. This mixture did not fuse at a dull red heat. The manganate of soda thus formed was powdered and made into a paste with a 10 per cent. solution of caustic soda. The paste was then submitted to a gentle heat till thoroughly dry and the dried material then heated to bright redness; this left still an infusible mass. A quantity—200 grammes—of this material prepared as above was placed in a retort and heated to dull redness and superheated steam passed over it, after about 350 c.c. of gas had been expelled (being about the volume of the residual air in the retort) this was rejected and 500 c.c. of a gas was then collected and on analysis it was found to contain 90 per cent. of oxygen, thus showing that 450 c.c. of comparatively pure oxygen was collected. This showed that du Motay's process was a practical one.

William Thomson.

Manchester, England, June 28, 1900.

THE PANUCO COPPER COMPANY.

We have received a copy of the report of the official liquidator, made in London. The portions covering matters which have not been already explained in our columns are as follows:

"22. The directors, in agreeing to pay the increased purchase price to Mr. Carlton, state that they were influenced by their belief that the property was a very valuable one, and that a good dividend could be paid on the capital of £500,000. They did not consider that the price paid by Mr. Carlton was a factor in determining the price to be paid by the company, and none of them appear to have noticed the resolution of the American company to sell for not less than $350,000, though it is recited in an agreement mentioned in the prospectus. Mr. Keswick states that he was also influenced by the rise in the price of copper during the course of the negotiations for purchase.

"23. Though the gross profit to be made by the promoters amounted to £128,334 in cash and £51,666 in shares, the net profit actually made by them, according to an account supplied by Mr. Wheater to the official receiver, amounted to £15,482 9s. 10d. in cash and £60,350 in shares.

"24. The following is a short account of the shareholdings of the vendors, promoters, directors, and others: Mr. Weed transferred the whole of his shares on December 9th, 1899, for a nominal consideration to Mr. W. R. George, whose nominee he was, and Mr. George is the registered holder of the shares. Mr. Hugh McDonnell transferred 27,500 of his shares, 5,000 to Mr. Keswick, as stated below; 3,500 on August 1st, 1899, for a nominal consideration, to Mr. Whalley (who disposed of 1,500 of them to stock brokers during October, 1899, and January, 1900, for £622 10s.); 1,000 on February 26th, 1900, for a nominal consideration, to Mr. Smith (Mr. Wheater's nominee), in whose name they remain registered, and 18,000 during July, August and October, 1899, in blocks of 500 to 3,000 shares, for nominal considerations, to various parties who remain the registered holders of the shares. Mr. Cogswell transferred 2,000 of his shares on August 15th, 1899, for a nominal consideration, to Mr. J. A. Robertson, who is the registered holder, and 1,000 shares on August 19th, 1899, for a nominal consideration, to Mr. Norman Macdonald, of New York, who transferred them to third parties on March 31st, 1900, for £50. Mr. R. St. J. Cleary transferred 500 of his shares on October 4th, 1899, for a nominal consideration, to Mr. Smith (Mr. Wheater's nominee), who transferred them on the same date to third parties, 400 for a nominal consideration and 100 for £100. The remaining members of the Cleary family have, according to the company's register, retained their respective holdings of shares. Mr. Carlton was originally entitled to 45,175 shares, being half the 88,334 shares subscribed for, as mentioned in paragraph 19, and half the 2,016 shares mentioned in paragraph 20. He has apparently disposed of 21,458 shares and 23,717 still stand in his own name or in the names of his nominees. Mr. Wheater also was originally entitled to 45,175 shares. He has sold 40,337 and remains the owner of 4,838 shares. Messrs. Matheson, in the name of two members of the firm (Mr. Keswick and Mr. Macdonald), underwrote 10,000 shares and were allotted 7,425. They received in the same names 12,000 vendor's shares, nominally as underwriting commission. Of the 7,425 shares allotted for cash 500 were transferred to Mr. Keswick as his qualification; of the rest, the greater part were transferred into the names of a stockbroker for sale, and 2,250 were sold between the 2d and 10th of March last for £1,353. Mr. Keswick also received 5,000 vendor's shares from Mr. Hugh McDonnell. These shares, Mr. Keswick has informed the official receiver, were transferred to him as security for the repayment of two sums of £1,000 each, lent to Mr. McDonnell and Judge Cleary. The 5,000 shares were transferred to a stock broker for sale in November, 1899, and 1,250 shares were sold before the close of the year for £592, 1,500 more during February and March for £753, making a total of 1,750 shares sold for £1,345. Mr. Fellows underwrote 1,750 shares and was allotted 882. He received 350 vendor's shares as underwriting commission. He has not sold or transferred any shares. Mr. Cook underwrote 10,000 shares and allotted 7,529. He received 2,000 vendor's shares as underwriting commission. In June, 1899, he sold 950 shares to Mr. Wheater for £750, and in July an additional 60 for £60. Mr. Leith underwrote 4,500 shares and was allotted 2,500, 1,000 of which were subscribed for by him on behalf of friends and immediately afterward transferred by him to them. He became entitled to 900 vendor's shares as commission, but 200 of these shares were allotted at his request direct to the friends mentioned above. In March, 1900, he sold 1,000 shares through Mr. Wheater for £512 10s. Mr. Down underwrote 5,000 shares and was allotted 5,000. He received 1,000 vendor's shares as underwriting commission. He has not sold or transferred any shares. . . .

"33. The official receiver has sent out to Mexico a mining foreman with instructions to keep the mine in repair at the lowest possible expenditure; to let no strangers on the mine, and to guard in every way against fires.

"34. Evidence has been laid before the official receiver which leads him to believe that the mine was either 'salted' for Mr. Down or that his samples were tampered with; and that the samples taken by Mr. Knox in October and November, 1899, were also tampered with.

"35. All the material on this point in the possession of the official receiver will be laid before the Committee of Inspection in order that they may be able to judge as to what course ought to be pursued in the interests of the shareholders."

CHRISTMAS ISLAND.

An abstract in the "American Journal of Science" for July gives some interesting particulars in relation to this island, which until recently was little known, but which has acquired some commercial importance owing to the discovery of large deposits of phosphate. The abstract is from a monograph by Charles W. Andrews, of the Geological Department of the British Museum. The unique character of Christmas Island, in its position, history and life, gives peculiar interest to this account of the results obtained from the 10 months' vigorous explorations made by Mr. Andrews.

Christmas Island has an area of 43 square miles, and rises in places to a height of 1,000 ft.; it is covered with a dense tropical vegetation. It is situated in the eastern part of the Indian Ocean, 190 miles to the south of Java, 900 miles northwest of the coast of Australia, and 550 miles east of the atolls of Cocos and North Keeling. The submarine slopes about it are so steep that a depth of 1,000 fathoms is found within two or thre miles of the coast, while to the north, a depth of 3,200 fathoms was found (Maclear Deep), and to the south and southwest, of 3,000 fathoms (Wharton Deep). The island is described as forming the summit of a submarine peak, the base of which rises from a low saddle which separates the two abysses named, and on the western end of which the Cocos-Keeling Islands are situated. Its peculiarly isolated position, hence, is most striking. Its history is also unique, since, although known to navigators since the middle of the 17th century, no one seems to have penetrated into the interior until 1887, and, as remarked by Dr. Murray, down to a few years ago it was probably the only existing tropical island of any large extent that had never been inhabited by man, savage or civilized. Its animal and vegetable life, therefore, are thus far almost unchanged by the conditions introduced by human life.

Geologically, the island consists largely of elevated Tertiary limestones with extensive series of eruptives; briefly, it may be considered as an ancient atoll raised to a considerable height above the level of the sea. The "central nucleus" is made up of compact yellow limestone in places very hard and showing no traces of bedding or jointing. This is referred to the Eocene (or Oligocene) and is accompanied by basalts and trachytes, both beneath and between the beds. The total thickness of these older Tertiary and accompanying volcanic rocks is estimated to be 600 ft. Forming the mass of the island is the Miocene Orbitoidal limestone, separated from the older rocks by basalts and basic tuffs. The higher elevations are dolomitic limestones containing 34 to 41 per cent of magnesium carbonate; these show traces of coral structure and imperfect remains of Foraminifera. Thick beds of phosphate of lime, in part limestone beds altered by overlying guano, in part phosphatized volcanic tuffs, occur on some of the elevated points and have proved to be of economic value. The Tertiary limestone, especially the Miocene, forms abrupt vertical cliffs, sometimes 250 ft. in height, along a large part of the coast line. A series of terraces is also noted around the shore and outlying the whole is the fringing coral reef. Mr. Andrews remarks upon the remarkable development of elevated Tertiary rocks and the difficulty in explaining their deposit over an area so isolated. He adds that the great thickness of reef limestone, required by the Darwinian theory of atoll formation, is not found, and although there may be some evidence that subsidence did occur in the history of the island, it is clear that it was not for any long period nor of any great extent. It is interesting to recall in this connection the similar observations recently made by Agassiz on the elevated Tertiary limestones of the Fijis and other islands of the Pacific.

HAMILTON SMITH.

Hamilton Smith, whose death at Durham, N. H., on July 4th, was one of the most distinguished of American mining engineers and was well known throughout the world. He was born in Louisville, Ky., in 1840, but when about 6 years old was sent to Durham, N. H., the residence of his grandfather, Judge Valentine Smith, and there received his education. His father, Hamilton Smith, was a native of Durham, but lived for many years in Kentucky, where he practiced law. At an early age he entered into the practical work of an engineer and about 1858 was employed as assistant and later in various capacities in surveying and constructing railroad lines in Kentucky and Indiana, in opening and operating coal mines in Indiana, and in the necessary works for mining and transportation of coal. From Indiana he went to California, where he engaged at first chiefly in placer and hydraulic mining, on which he soon became an authority. He was connected with the North Bloomfield, the Milton and other large hydraulic mines, and as consulting engineer and manager he executed important works which make it possible to work the very low grade gravels of Nevada County at a profit.

One result of his work and studies there was his book on "Hydraulics" which was published later and which earned for him much reputation among engineers. He also wrote at different times papers on the "Flow of Water Through Pipes," "Water Power with High Pressure," and "Temperature of Water at Various Depths."

Besides his work in California he spent much time in Mexico, where he examined properties and acted as consulting engineer. When hydraulic mining in California began to decline and the opposition to it arose which finally culminated in the passage of the Debris Act, Mr. Smith

HAMILTON SMITH.

turned his attention to quartz mining, and became interested in various properties. He was one of the first to appreciate the possibilities of the low grade gold-bearing deposits of Douglas Island, Alaska, and with friends interested himself largely in the Alaska-Treadwell, the Alaska-Mexican and contiguous mines, which were afterward placed upon the London market.

His first venture in London was the establishment there of an office in connection with the late Mr. Edmund DeCrano. Soon afterward he formed the Exploration Company, Limited, at first with a very modest capital. The success of this corporation, which was a pioneer among exploration and finance companies, is well known. He soon established his business and reputation abroad and became connected with the Rothschilds and other large capitalists, for whom he acted as consulting mining engineer. He examined and reported on El Callao Mine in Venezuela, the Drum-Lummon Mine in Montana, sold to the Montana Mining Company, Limited, and on other properties. In fact a list of all the mining enterprises with which he was concerned would be too long for our space. Among the more recent we may mention that he was concerned in the sale in England of such properties and the formation of such companies as Fraser & Chalmers, Limited, the Anaconda Copper Mining Company, the Tomboy Gold Mines Company, the Grand Central Mining Company of Sonora, Mexico, the Helena & Frisco of Idaho, and more recently in the flotation of El Oro Mining and Railway Company of Mexico.

With his wide experience and connections, his attention was naturally called at an early date to the gold mines of the Transvaal. He made an examination of some mines on the Witwatersrand, and wrote an exhaustive report on the district. When a summary of this was published over his signature in the London "Times" in 1893, many of his friends knowing his "cold-nosed" and even pessimistic tendency toward mining properties, were surprised at the amount he calculated in sight in the various mines. It was on the publication of this letter that Americans began to believe in the enormous possibilities of this district. Although Mr. Smith's estimate seemed then extremely large, the annual production up to the present time has even surpassed his predictions; and there is no doubt that his original estimate will be greatly exceeded before the mines are exhausted.

He was much interested in the deep level mines on the Witwatersrand, and was prominent in formation of the Rand Mines, Limited, and its subsidiary companies. In one of the most important of these and the first deep level mine to be extensively worked—the Geldenhuis Deep—he took exceptional interest, and though the first returns from it in 1896 and 1897 were disappointing, he never lost faith in the ultimate value of the property. His judgment has been amply ratified by the production and profits of this property during the past three years; and by the condition of other deep level mines.

During all his work at home and abroad Mr. Smith retained a strong attachment to his early home at Durham, among the New Hampshire hills. He kept a summer home there, gave liberally to the town in many ways, and has lately completed plans for the building of a public library. He founded a scholarship in the New Hampshire Agricultural College, known as the Valentine Smith scholarship. At the time of his death he had just returned from a visit to the Mariposa Mines in California.

Mr. Smith became a member of the American Institute of Mining Engineers in 1877; of the American Society of Civil Engineers in 1879; and of the British Institution of Civil Engineers in 1888. He took much interest in these societies and gave them as much time as was possible for a man so actively employed.

Besides the books and papers above mentioned he wrote one on the "Costs of Mining and Milling Free Gold Ores," which was published in London in 1886. Like many other active men he left fewer records of his experience and observation than his fellow-engineers would like to see.

BRITISH COLUMBIA.—PROGRESS ON VANCOUVER AND TEXADA ISLANDS.

Special Report of W. M. Brewer, Traveling Correspondent.

Although the climatic conditions are such on these islands that underground mining can be carried on during the entire year, yet surface work and prospecting are seriously interfered with during the rainy seasons in the winter months; consequently the seasons are to a great extent similar to those in less favored districts. The season for prospecting work may be said to commence about May 1st, although sometimes the weather is sufficiently favorable for such work to be performed on the lowlands earlier in the year. This year the season opened earlier than usual; in fact, there has been comparatively no hindrance to prospecting to an altitude of at least 2,000 ft. on either of these islands during the entire winter, because the snowfall was unusually light.

From observations of the writer, during recent trips made both on Vancouver and Texada islands, he is of the opinion that there will be great activity in pushing development work on many mineral claims, on which but little work had been done in the past. There appears to be a desire among the prospectors to perform assessment work on these claims, rather than to allow old records to expire and take advantake of re-staking.

Because of the very satisfactory results which have attended the development of the Nahmint Company's property on the Alberni Canal, a description of which was published in the "Engineering and Mining Journal," a large number of claims in that vicinity are now being exploited on which heretofore but little work has been performed.

About four miles below Hayes Landing on the Alberni Canal, the Monitor Mining Company, a New Jersey organization of which Mr. Geo. W. Maynard is the president and consulting engineer, is employing a force of miners on one of the claims of the group, owned by that company. The company is also constructing a wharf and suitable buildings for a camp, and proposes (if the development work on the mine proves satisfactory), to erect an aerial tramway and bunkers. The surface showing on this company's property is remarkable chiefly because of the high grade and massiveness of the chalcopyrite from grass roots down. Aside from the small proportion of magnetic iron ore, which is associated with the chalcopyrite, there is apparently no gangue material, such as calcite, quartz, garnet or hornblende in the ore body.

A casual examination of the outcrop would lead one to form the opinion that the structure of this ore body was that of a well-defined fissure in an igneous dike. The first development work performed showed two well-defined walls, with about 8 ft. of massive chalcopyrite enclosed therein, but a drift run on the ore body demonstrated that, at about 40 ft. from its mouth, a body of limestone apparently filled the fissure. A winze was then sunk from the floor of the drift, which in its turn demonstrated that the ore body dipped under the limestone. At the time of the writer's last visit to this property in May, this winze had not been sunk deep enough to warrant the expression of any opinion as to the future possibilities. During the progress of drifting, about 250 tons of good grade chalcopyrite were taken out and a thickness of 5 ft. solid ore was exposed.

The structural geology of the Monitor Company's group of claims is complicated and an interesting study. On the surface there is a well-defined fault-plane, apparently coinciding with the hanging wall, which as exposed in the drift and the ore capping which forms the outcrop lies between well-defined walls, with its lines of strike easterly. Although the outcrop cannot be traced along the line of strike of the fissure for any great distance, yet there is evidence that this fissure does extend for several hundred feet with an easterly trend. However, to demonstrate that this is a fact, it would be necessary to perform a large amount of surface work, because a quantity of moss and fallen timber and a heavy growth of underbrush entirely cover the surface. At several points, though, well-defined walls are exposed where material between them has been carried away with erosion, the force of

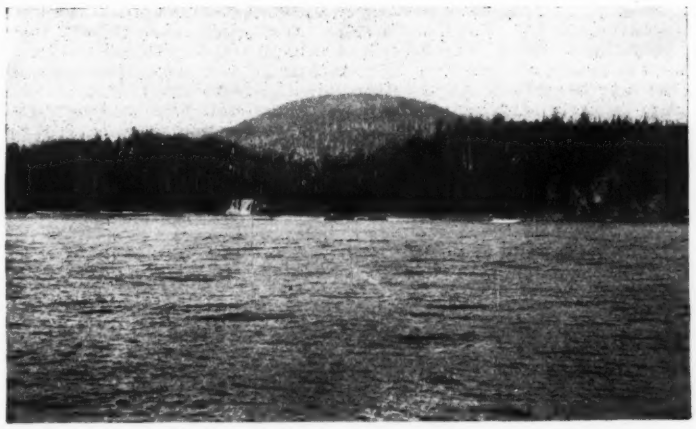
which appears to have been quite as great here as on many other portions of the island.

A peculiar geological condition has been exposed by the underground working of this prospect; while the roof of the drift at the point where the ore body dips is solid limestone, yet the surface of the mountain above this drift is igneous rock. It would appear as though the limestone was held between the walls of the fissure on either side with ore dipping under it, and is covered with several feet of igneous rock which has apparently flowed over it.

Assessment work is being performed on a large number of claims located along the shores of the canal, as well as in the neighborhood of Snug Basin, Uchucklesit Harbor and Anderson Lake, which lie northerly and westerly from the Monitor Mining Company's camp.

The satisfactory conditions which existed on Texada Island, when the writer visited that section in February last, still continue. As the Copper Queen Mine, the main shaft has been sunk to the 500-ft. level, a station cut and drifting has been commenced with expectation of exposing the same high-grade ore body on that level as was exposed on the 400-ft. level. A winze sunk from the 400-ft. level a depth of 50 ft. demonstrated that this body of chalcopyrite maintains its continuity beyond that depth.

The management of the Marble Bay Mine, adjoining the Van Anda Company's group, having concluded to stope the ore between the 50-ft. level and 150-ft. level, is shipping to the Van Anda smelter. The ore body in this mine occurs near the contact between limestone and felsite, but through the felsite, rather than occupying cavities in the limestone; consequently all the material hoisted has to be carefully sorted, and at the time of the writer's visit the result from this sorting was about one-third shipping ore, one-third second grade ore and the balance waste.



WEST COAST, VANCOUVER ISLAND, B. C.

On Texada Island there have apparently been several movements of the earth's crust which have caused the excessive faulting. This structural condition can be well studied in the underground workings of the Marble Bay. Besides the line of contact between the felsite and limestone, which suggests probably the first movement, there occur fissures trending nearly at right angles to the line of strike of the contact. These fissures are filled with mud and breccia and they have been prospected for a considerable distance, but no ore has been found in them. This would appar to belong to the most recent movement. In addition to these on the 150-ft. level, there are other fissures extending nearly at right angles to the line of strike of the contact which contain ore of good grade. The walls of these fissures are slickensided, and the surface of many large masses of ore are found polished from the effects of this action, which suggests the possibility of movements subsequent to the deposition of the ore in these fissures. Then again, we find narrow dikes of diorite as intrusions extending sometimes across the line of strike between the felsite and limestone and sometimes occurring as intrusions in the limestone.

It is the purpose of the management of the Marble Bay Company to continue the main shaft to a further depth of 200 ft. The high-grade ore body found on the 400-ft. level of the Copper Queen Mine does not outcrop on the surface, but has its apex between the 300-ft. and 400-ft. levels.

During the last visit made by the writer to Texada Island, he continued his investigations to the extreme north end, or about 5 miles northwesterly from Marble or Sturt Bay. Following the coast line one finds that for nearly 3 miles above Marble Bay the formation, as far as can be determined from the coast, is solid limestone, but from that point to the northern extremity of the island there occur several extensive dikes of felsite and diorite as intrusions in the limestone. A new discovery of copper-bearing ore, known as the Loyal Group, is located very near to the point where these intrusive dikes occur. The outcrop which led to this discovery is situated about 500 ft. from the shore. It consists of several deposits of copper carbonates scattered through a zone of some 40 ft. or 50 ft. thick of limestone, near to the dike between that rock and igneous. Surface stripping has demonstrated that this outcrop can be traced for several hundred feet. Owners of this prospect, at the time of the writer's visit, were preparing to crosscut the zone with an open cut the face of which would be about 60 ft. at the deepest point. A tram road, wharf and ore bins were also being constructed, it being the purpose of the management to commence shipping this ore to the Van Anda smelter at once. Quite a large quantity of ore, which the writer was reliably informed, carrying an average of 10 to 12 per cent. copper, had already accumulated on the dumps, as a result of the surface prospecting work.

From the Loyal Group to the extreme north end of the island at Blubber Bay, is nearly a distance of about 2 miles. The predominating rock between these points is limestone, with an occasional intrusive dike.

At Blubber Bay is located a prospect which is being developed by the McKenzie-Mann-Holt syndicate. The development work is being pushed on this property, and already a considerable quantity of ore is on the dump. Some handsome specimens of azurite have been found in the underground workings; galena was also discovered associated with the copper ore. Owing to the depth of sand in the vicinity of this prospect, the outcrops are not as easily traced as on the Loyal Group where no sand occurs, consequently the work of prospecting is attended with greater difficulty.

On the northwestern side of Blubber Bay, old lime kilns are located which were in active operation some time since; but at the present time the limestone from the quarries which supplied these kilns is being used in the preparation of a Portland cement manufactured near Vancouver. Limestone quarries and lime kilns are being actively operated at Marble Bay, within a few hundred yards of the Marble Bay Company's copper mine.

From the foregoing it will be seen that although Texada Island is quite limited in area, its resources are varied and important, especially when the iron ore deposits of the west coast are taken into consideration.

PLACER-MINING IN THE SOUTHERN OURALS.

Written for the Engineering and Mining Journal by Charles Tappan.

As the Russian Government is granting mining rights to foreigners, and is very willing to have foreign capital invested within its boundaries, an account of the results of an examination of part of the South Oural Placer District may be of interest to American mining engineers.

The topography of the country is very unfavorable for placer-working as carried on in this country. The drainage slope is so flat that many of the streams have a hardly perceptible current. A dam 6 to 8 ft. high makes a pond from 1½ to 2 miles long. Hydraulicking is, of course, utterly impossible. As no proper tailings dumps are available, sluicing is unknown. All the sand must be handled by wagons, barrows or cars. Usually the water for washing has to be pumped to a higher level than it can be brought by dams and ditches. Cheap methods of mining and washing cannot be introduced in such a country. Steam shovels and amalgamators would be of doubtful economy in a district where common labor is very cheap, and skilled labor is hard to find and uncertain.

Pay sand is not found in any of the stream beds, that is in the beds of streams that are now flowing. There are ancient channels containing good sand, though none of them have been found with continuous pay for any considerable distance. The old channel of the Ui River is from 50 to 150 ft. higher than the present channel, and every little stream that crosses the old channel has washed out the gold-bearing sand completely. The pay sand is found on the ridges between these recently-formed tributaries.

The sand is covered by soil and clay, varying in thickness from 3 to more than 100 ft. The average thickness of soil in the developed mines is from 20 to 70 ft. Prospecting is done by digging holes to bedrock. It is very uncertain work. In the Gumbayka Valley one man dug holes for two summers, and was on the point of abandoning his claim, when he struck pay that yielded more than 4 poods of gold, say about $40,000. His pay was all within a space of 1½ acres. The old channel was straight for 1,200 or 1,500 ft. in the adjoining claim, but had taken a turn not indicated on the surface, and left this patch of isolated pay. No more pay was found for two miles down the valley. There may be another 1½ acres of pay within this two miles. To make certain that it has not been missed, in a space 2 miles long and 1 mile wide, it is necessary to dig more than 1,000 holes, averaging 60 ft. deep. Boring 6-in. holes has proved to be about as expensive as sinking round shafts 3 ft. in diameter. The native miners will dig shafts by contract, but they will only work with boring tools by the day, and they usually succeed in breaking more tools than ground.

The gold-bearing sands are of two classes; one which shows strong evidence of stream action, with well-rounded boulders and gravel of quartz and other hard stones; another which shows little or no signs of stream action and suggests the decomposed apex of quartz veins rather than an alluvial deposit. Both classes are alike in the spotted character of the pay. A bunch of high-grade pay sand containing only a cubic yard or two may be found in the bottom of a shaft, and nothing else will be found for hundreds of yards around it. Unfortunately, the physical characteristics of the sand are no indicators of its gold contents. From one shaft the pay may all be in a pure white quartzy sand, while 30 ft. away all the gold is contained in a heavy red clay.

The Russian word "pessok" is translated sand in the dictionary, but the Oural miners use it is the restricted sense of "pay dirt." Pessok may be gravel (coarse or fine), loam or clay. It must be the layer next above the bedrock; when gold-bearing sand is above a layer of clay or of barren sand, it is called "verchoveek" or top stuff. Bedrock is called "pochva," but in the Southern Ourals the only rock recognized as true pochva is steatite. The country rock between the villages Suchtali and Amienief is limestone. There are a number of old mines along this limestone belt, and it can be easily traced for 20 miles. The miners did not consider this proper pochva, and several of them suggested that it would be advisable to send for dynamite and go through it. They thought true pochva and pessok might be found under the limestone. One man with a foreman's license and in many respects much above the average intelligence could not see the absurdity of this proposition, even after I took the trouble to show him that from the dip of the bedding planes and the thickness of the outcrop, there could be no doubt the limestone was several thousand feet thick.

Quartz mining is confined almost exclusively to the immediate vicinity of Kotchkar, but quartz veins are found everywhere throughout the Southern Oural District, except in the limestone country. The veins are generally barren. When gold is found it is usually in very small pockets. In the town of Verchneuralsk there are numerous very pretty cabinet

specimens of free gold quartz. I examined one vein from which some of the handsomest specimens were taken. It was only a few inches wide. The specimens all came from a pocket 6 ft. long and 3 ft. deep. There was no visible gold in any of the quartz left around the edges of the cut, and only a few small colors were recovered, after pulverizing and panning with mercury. It is a strange thing that all the natives were very anxious to find veins. They seemed to think I was crazy because I would not waste time and money on veins that were not only barren but so small as to be unprofitable even if rich in gold. The only one that I did any work on was 2 ft. thick at the surface with 1 oz. of gold to the ton; at 20 ft. deep it was not ½ in. thick. Thirty feet from the shaft it was 2 in. thick at the surface. The natives were astonished when I refused to do more work.

The Russian mining law has not been translated and published in English, at least I have not been able to find a translation, but I give the following interpretation of it:

Anyone can own mines who has secured a miner's right; this right is for life and non-residents may acquire it. The preliminaries, for a foreigner, are quite complicated, and include a certificate from the police or the law courts of one's native country that he is not insolvent, and the Russian Consul nearest the place of residence must certify that this certificate is in proper form.

The location of mining claims is quite simple. Digging a small hole, planting one post at the beginning point and filing with the police of the sub-district a paper describing the claim constitute the first step. This is called a "zaiafky," literally an entry, the same word that is used in the agricultural land business of the United States. Zaiafkies are either for veins or for placers. One person may enter a vein claim adjoining his own entry for placer; but he cannot have the beginning points of two veins or two placers closer to each other than 5 versts (about 3 1/3 miles), though adjoining claims may be acquired by purchase. It is the custom for the wife and relatives of a mine owner to take out mining rights, and thus the law against entering adjoining claims is practically inoperative.

A placer is limited in area to 104 dessiatinas (say 280 acres), and the greatest length must not exceed 5 versts (say 3 1/3 miles); a vein claim cannot exceed 1 square verst. The beginning point on a placer, that is the point designated on the ground by post and hole, must be the lowest point; the entire claim must lie on ground higher than this point. The placer cannot include any ground except such as has a natural drainage toward the beginning point. If the beginning point is set within 2 versts of the head of a stream or gulch, it will be curtailed that much as one is not allowed to go over the divide and down another gulch. No one can file a zaiafky with a beginning point with the limits that may be covered by a previous zaiafky. For example, if a zaiafky begins just below the junction of three streams, the land for 5 versts up each stream is closed to all prospectors. It is only when the official land surveyor comes around, say 18 months or 2 years after the zaiafky is filed, that the mine-owner must decide just what his boundaries are to be. The owner may then select his ground all in one gulch, or he may have a forked claim running up all the gulches. The official land-surveyor is paid by the Government, but it is customary to give him 40 or 50 roubles "for tea;" and also 10 to 15 roubles to the army officer, who is always detailed to watch that the land-surveyor is not bribed.

The filing of the zaiafky gives the right to explore the ground by shafts or otherwise, but not to take away any gold. All the gold that may be found must be thrown back into the shafts (this law is, of course, never observed), and the shafts must be filled up. The real working of the claim cannot begin until the official survey has been approved by the head engineer of the district. If it is desired to work the claim immediately after the zaiafky is filed, a Government surveyor will be sent at the owner's expense, and the official measurement will be made "at once," which in Russia means a week or a month or more. In this way work may commence within two or three months after the zaiafky is filed. Usually, the official survey is not made sooner than two years after filing the zaiafky.

Before beginning the work of getting gold, a notice must be sent to the head mining engineer for the district stating that work is about to be started. With this notice must be enclosed an undertaking, in which either the owner himself—or the superintendent, but generally the foreman—agrees to be personally responsible for any accidents that may happen to the miners or other workmen. If anyone is killed or injured the person signing the undertaking is liable to imprisonment. A defense may be made where a man is undoubtedly hurt through his own carelessness. But such a defense is difficult to establish, and in case of serious accident the chances are that the foreman goes to prison. The sentences are not long. One foreman was imprisoned for two months for sending a man to work in a drift that was poorly timbered. The miner did not have sense enough to look after his own safety and was killed. In case of injury a small payment will usually prevent the filing of a complaint.

The number of poods of sand washed and the weight of gold recovered must be entered in a book every day. The books for this record are official sealed books and are obtained from the Mining Bureau office in Ekaterinburg. The number of poods of sand washed is always a matter of guess. The superintendent knows that so many wagon loads have been washed and usually calls each wagon load 25 poods. I saw many wagons that held only 15 poods, and none that would hold more than 25 poods. If no sand is washed, there must be an entry in the book "No work." This book must be posted and signed by superintendent and foreman every day and be always ready for inspection by the head mining engineer or his deputies. The gold recovered must also be kept on hand at the mine and its weight must agree exactly with the total recorded. If any gold has been sent to the Mining Bureau, the receipt from the latter can be shown instead of the metal itself. Any error in the keeping of this book is punished by a fine of from $10 to $100. No one is allowed to sell gold nor to use it in trade; all gold recovered from the mines must be deposited with the Government Mining Bureau. The gold is weighed, melted and assayed just as it is in the United States assay offices, with this difference, the Russian Government desires the presence of the mine owner or his representative during the melting, etc. The gold is paid for at the rate of 5 roubles per zolotnik; as the zolotnik equals 4.2653 grams, this amounts to 90¾ per cent. of the coinage value of the metal. This is the direct tax upon production. There is also a tax upon the land, which is fixed at the time of approval of the official survey. This tax depends on the acreage of crown lands covered by the claim, and ranges from nothing to 100 roubles per annum.

When part of a claim is upon village community lands, the village authorities demand an annual tax. Within the past few years this has been successfully resisted in the courts, in all cases where the mine owner could show that his workings were not injuring the producing qualities of the community lands. Whenever the workings destroy a grain field or a pasture, proper recompense must be made.

There are many technicalities and legal formalities to be observed. One of the most difficult for an American to understand is the inability to do anything without a power of attorney properly executed before a notary public. Everyone about a mine—except the common laborers—must have a power of attorney from the owner. Copies of the power duly stamped and attested by the notary must be filed with the head engineer of the district. As the notaries live almost 100 miles apart, the expense for powers of attorney is quite an item, especially as none of them are good for longer than one year.

The law provides for filing several monthly statements. One of these is a list of workmen, giving names, ages, passport numbers, etc. The foreman must have licenses, which are obtained after an examination before the head engineer of the district. Mines must be timbered according to the methods taught in the Oural Mining School. Judging from the timbering of the mines, these methods are very poor. There are numerous fines that may be incurred, should the head engineer come to the mine and find that some slight technicality had been disregarded.

Personal inspection of the plant by the head engineer is necessary before using steam. Whenever a boiler is put in, a diagram of the mine—showing position of workings—a plan of the boiler with the buildings near it and petitions and powers of attorney must be sent to the head engineer. He is allowed two months in which to make his inspection. If he allows this time to pass without coming to the mine, the boiler may be started. Personal acquaintance with this high officer may secure an early examination, but as a general thing nearly two months of idleness follows the erection of every boiler. It is customary to present the head engineer with 100 roubles and his traveling expenses. Boilers mounted on wheels can be inspected at Miass and are then allowed to work anywhere. Small portable boilers (not on wheels) must be examined at the mine where used.

The law as to the use of water is quite simple. If there is a stream within the surveyed limits of the claim, it can be used freely for gold washing. If there is no stream on the claim, the owner must pay the village community a water rent. The rate is to be agreed upon by the owner and the officers of the community, and it is usually very light. Conflicting water rights are unknown, there being no irrigation.

The official land surveyor marks the boundaries of every claim by posts and pits at each corner, and by plow furrows along each line. As the posts are always stolen for fuel, the pits and plow furrows are the only things to depend upon. Fortunately they are easily traceable, even after 15 or 20 years. It may be interesting to know that no piece of wood should ever be left unguarded, or it will surely be stolen. If a timbered mine is left without a watchman the natives will risk their lives to rob it of every stick.

The mining is usually done by means of small untimbered round shafts, which are 3 ft. in diameter and remarkable pieces of work. Two men can sink from 12 to 20 ft. per day. The price paid per lineal foot varies from 3 to 10c. for depths of 75 ft. or less; the American standards for money and measures are here used. When the ground will not stand, square shafts 30 by 36 in. cribbed with light split poles are sunk for 15 to 35c. per foot. In loose ground, where pumping is necessary, larger shafts are made. The difference in the prices paid for shaft sinking depends more upon supply and demand for labor than on the hardness of the soil. In the height of the harvest season, it is difficult to get miners at any price. Drifting is much more expensive than shaft sinking. A drift 6 ft. high costs for labor from 30 to 50c. per running foot, and in heavy ground the timbers cost as much as the labor. Many mines are covered with shafts less than 10 ft. apart. This comes from the higher expense of drifting. If poor sand is found in the bottom of a shaft, instead of drifting to find better a new shaft is sunk. In wet mines where pumping is necessary, this method is unprofitable.

Removing the top soil by open cut has been done when practicable, but economic and scientific methods of doing such work are not understood, and I found it impossible to meet anyone who could give an estimate per cubic yard in the mining country. An engineer, with experience of excavating in Central Russia, where wages are about the same as in the Ourals, gave the average cost at 5½c. per cubic yard for shallow work with short haul, an advance of 10 to 15 per cent. when the excavation exceeded 15 ft. in depth, and another similar advance when it exceeded 20 ft. Plow and scraper work is unknown. Where the haul is as short as 60 or 90 ft., horses and wagons are used in preference to wheelbarrows. The capacity of the wagon is 1/3 cubic yard; two women and one man were employed for each wagon. The women do the shoveling and the man the driving and dumping. The wagons are self-dumping; the bottoms are two boards on hinges held up by a cross stick, which is generally held up by a loop of rope. Some of the wagons have no iron in their construction, except the hinges and king bolts. In trying to get men to contract for small cuts, where no hauling was necessary, I found a very strange method of calculating the price. The miners knew the going price for shaft sinking, and as a shaft was nearly a square yard in area, they would ask the same amount for a cubic yard of cut as for 3 ft. of shaft. It was useless to argue with them, and point out that it was much easier to break down the ends of a cut than to pick up the bottom of a shaft. They would acknowledge that it was easier, but from their point of view, this advantage should benefit the laborer solely and not be shared with the employer. It is difficult for a person accustomed to intelligent labor to believe this, but nevertheless it is true.

(To be concluded.)

THE TESTING OF FLAT PLACER DEPOSITS.

Written for the Engineering and Mining Journal by Robert Nye.

The successful results obtained during the past few years by the dredge and the steam shovel in working gold-bearing gravel deposits which are of too low grade to be worked by other methods, has caused a great interest to be awakened in this branch of placer mining. In fact, what may be called a new industry has sprung up and thousands of acres of gravel deposits, suspected or known to be rich in gold, have suddenly become valuable which four or five years ago were considered worthless. Investors and promotors have experts out all through the placer mining regions, hunting up and testing ground believed to be rich in gold and to possess the necessary natural conditions for successful handling by the steam shovel or dredge.

The testing of this class of ground often presents new and difficult problems. There is no doubt in the minds of engineers but that the best way to test a placer deposit is by means of shafts or drifts, or, better yet, by both, when they could be sunk or driven with reasonable cost. Most ground for work by the steam shovel can be tested in this manner. But I know of one instance where good results upon this kind of ground were obtained by the use of an auger operated by hand. The deposit being shallow and there being no water to contend with, made either method easy. The advantage of the auger was that for the same cost a much larger number of holes could be put down than shafts, which gave a much more accurate contour of the bedrock. The results from the auger holes were checked by an occasional shaft and found to be very accurate. In ground suitable for dredging, however, there is often such a large amount of water to contend with that shaft sinking is made too expensive. In fact, some dredging grounds with all the natural conditions necessary for successful work have so much water in them that to prospect it by means of shafts would cost more than to put the necessary dredgers upon it. I know of one instance in Idaho where a company spent over $4,000 in the vain attempt to sink a shaft to bedrock where it was afterward shown by a drill hole to be 27 ft. from the surface. They only succeeded in getting the shaft down 19 ft. It is upon such ground as this that the well-drilling machine has found a place as a prospecting tool.

The advent of the well driller for prospecting gold-bearing gravel has caused a great deal of discussion as to its efficiency and accuracy. Some engineers have condemned it, while others have used it and have perfect faith in the results obtained. For the most part, the discussion of this subject has been carried on by engineers and mining men who had nothing in view but the determination of the best method for obtaining the required results. Some few, however, have been evidently biased by their interest in some particular make or kind of apparatus, the use of which they have sought to promote.

There is a large amount of dredging ground which might be prospected by shafts, but where 10 drill holes could be put down for less than the cost of sinking one shaft. It is my opinion, after considerable experience in prospecting various classes of placer deposits, with shafts, drifts, and different kinds of drilling machines, that 10 drill holes give more reliable information about a piece of ground than one shaft can. The shaft will no doubt give a more accurate value per cubic yard of the gravel at that one spot than any one drill hole, but the average 10 drill holes will be more accurate for the whole ground tested than one shaft. The shaft, too, will give more accurate and easily understood information as to the exact kind and proportion of soil, sand, pebbles and boulders met with and the character of the bedrock. The 10 drill holes will, however, generally give as full and reliable information as is necessary. It takes more practice and closer watching to read the results from the drill holes. The latter will give data from which the contour of the bedrock can be established, of which the single shaft gives no idea.

The man who is interested in the sale of a tract of dredging ground which is not giving encouraging returns while being prospected with a drill, almost invariably claims that the drill drives the gold down and outside of the pipe, and also that if the gold were in the pipe at the bottom of the hole, the sand pump will not bring it up. On the other hand, the engineer who want to be sure of being on the safe side in making his report, is often afraid that the drill will shake and loosen the ground around the pipe and that the finer and richer material will work through the interstices between the rocks and into the bottom of the hole, making the yield of gold greater than it should be for the amount of gravel taken out. My experience has convinced me that one of these things, either of which would vitiate the results, may happen if the drill is carelessly or ignorantly handled. I am also convinced that, carefully and intelligently operated, the driller will give an accurate sample in almost any kind of ground.

To obtain this result two things must be done:

First. The bottom of the pipe must be kept in advance of the point of the drill until bedrock is reached.

Second. When bedrock is reached the pipe must be driven into it or upon it tight enough to shut out all sand and water and allow the hole to be pumped out clean and dry.

In ordinary well drilling it is customary to keep the point of the drill ahead of the pipe, as it is easier work for the men handling the machine and faster progress is made. In fact, most drill men claim that the pipe must follow rather than precede the drill to get a hole down at all. This may be true in some kinds of work, but in any ground which a dredge can handle it is possible and generally easy to keep the pipe ahead of the point of the drill. In prospecting several thousand acres of ground consisting of compact, virgin gravel containing some clay and cement and 25 to 45 ft. to bedrock, it was very rare indeed that it was necessary to allow the drill to get ahead of the pipe in order to get a hole down. When the drill is working inside the pipe, the pipe will jump at each stroke of the drill. This jumping is too slight to be seen generally, but it can be distinctly felt by placing the fingers upon the top or sides of the pipe. When the jumping ceases it is time to stop drilling and use the driving tool. It is this changing from the drilling to the pipe driving tools that makes work for the men operating the machine, and they generally need careful watching to compel them to do it as often as they should.

It is quite evident that in simply driving a pipe into a gravel deposit that there can be little or no chance for the gold or other contents of the core of gravel getting outside the pipe or anything outside getting in. The only part of the gravel or its contents that could get out of its original location is that small amount which lies directly under the sharp edge of the shoe of the pipe. About as much of this will be forced inside as out, so that it cannot in any degree affect the result. The pipe generally used for this kind of work has an inside diameter of 16 in. Cobbles up to a diameter nearly as great as that of the pipe may come inside and the drill is simply used to break up these cobbles into a size small enough to allow them to go through the valve of the sand pump and to loosen up the sand and gravel so that the sand pump can handle it. Frequent pumping is necessary to facilitate easy driving of the pipe. It also brings up the gravel more nearly in its original state and allows its character to be more accurately determined.

When bedrock is reached the drill is allowed to go ahead of the pipe far enough to make a hole into which the shoe on the pipe will fit solidly and tightly enough to shut out all the sand and water. The hole can then be pumped out clean and dry. To make sure of getting all the gold out, it is well, after the first cleaning out, to pour in a few buckets of water, drill a few inches further and pump out again. The last pulverized rock taken out can be panned out, and if it shows no colors of gold the hole may be considered clean. Sometimes the pipe will strike a seam or crevice in the bedrock and it will be impossible to shut out the sand and water. The only thing that can be done in such a case is to make a note of the fact, and when the clean-up is made, if that hole shows a value which varies much from the others already recorded, the result from that hole should be discarded.

The gravel taken out is placed in a box to be washed to save the gold, after the hole is finished. Mercury may or may not be used to collect the gold in the rocker, according to the character of the gold. It is convenient to use a box 3 ft. square on the bottom and 1 or 2 ft. deep. As it will hold just one-third or two-thirds of a cubic yard, it is always easy to estimate at a glance the fraction of a yard the box contains. Knowing the number and lengths of the joints of pipe in the ground, it is always easy to see at a glance whether or not the amount of gravel in the box checks out with what the depth of the hole will account for, due allowance being made for the larger bulk of the loose gravel over the space occupied before it is removed from the hole

To check my work I tried some very simple experiments. As a hole was being put down, I fed in at frequent intervals a weighed quantity of granulated silver. The idea was that if all the silver was recovered the gold in the hole would also all be saved, while if any silver was lost there would also be a good chance that gold was being lost. If a metal of the same specific gravity and other physical characteristics as gold, but readily separated and distinguished from it, could have been obtained, the test would have been more conclusive. The result the first time was that only 40 per cent. of the silver was saved. The next time the gravel, after being washed, was saved and repeated washings gave a recovery of 85 to 90 per cent. of the silver, each washing adding to the amount saved. The second washing showed nearly as much fine silver saved as the first, while not a color of gold was found after the first washing, showing very plainly how much easier it was to wash the gold out clean than the silver. This experiment, while showing quite conclusively that no gold was getting away, did not prove anything as to the possibility of gold getting into the pipe to which we were not entitled. I know of no way of proving conclusively the latter point. It is pretty safe, however, to assume that when the pipe is kept ahead of the point of the drill it cannot happen.

As silver, on account of its lower specific gravity, would be more easily lifted into the sand pump with the sand gravel, I tested the pump in another way. After bedrock was reached and repeated pumping out of the hole had proven the clean-out to have been thorough, a weighed quantity of gold of the same degree of fineness as that found throughout the deposit was placed in the hole. The drill was put in again and the hole sunk a foot or more deeper. The hole was again pumped out clean and the rock panned down. This was done a number of times and from 95 to 100 per cent. of the gold put in recovered. This proved that the sand pump was bringing up practically all the gold.

The record kept of each hole should contain the value in gold per cubic yard; the total depth to bedrock; the number and kind of different strata passed through, with the thickness of each and their order of occurrence; and the kind, size and proportion of sand and cobbles.

While all the gravel taken out is washed and all the gold saved, to calculate the average gold contents per cubic yard, frequent pannings should be made as the hole is put down, to tell how the gold is disseminated through the deposit, from top to bottom.

A good deal has been said about the relative advantages and disadvantages of steam and horse-power drills. The steam drill once set up will put down a hole in much less time than it will take to do it with a horse-power drill. The question is, which of the two drills can be moved, set up and put down at the next hole first. I have prospected ground where, with a horse-power machine, a move of from 100 ft. to a mile could be made and the machine set up and a hole put down before a steam power drill could be moved and set up. I am fully satisfied that just as accurate results can be obtained with one as with the other. The quick, sharp blow of the steam drill while drilling on the "spring of the rope," as drill men call it, is claimed by makers of steam drills as a great advantage. For prospecting I have failed to find any advantage in it over the slower dead drop of the horse-power machine, after using both kinds and watching the results very carefully. The selection of a steam or horse-power drill should depend entirely upon the character of the ground upon which it is to be used. and it would be folly to purchase a drill without some knowledge of the conditions under which it is expected to operate.

The cost per foot of sinking drill holes varies so much with the natural conditions that it is impossible to give anything like an average. Aside from the cost of labor and horse or steam power, which will

depend upon the local prices, three things enter into the problem—the time required to put down a hole, the time required to pull out the pipe, and time required to move the drill. In one locality where the gravel deposit was on an average 25 ft. deep and consisted of 2 to 3 ft. of virgin gravel, free from clay and cement and large boulders, with 20 ft. or more of oil tailings from old hydraulic works covering it, the price per foot was 90c. Other ground I have prospected, where the natural conditions were very unfavorable, cost $3.50 per foot. This does not include the pay of a man to take care of and wash the gravel taken out. The man for this work should know all the details of the work and be the foreman or working superintendent. Otherwise the men operating the drill are liable to do the work in the way easiest for themselves, which usually is not the way to obtain the most accurate results.

In only one instance that I am personally familiar with has any large amount of ground been prospected with a drill and subsequently been dredged. Near Idaho City, Idaho, a dredge has been working very successfully both from a mechanical and financial point of view for nearly two years. The yield per cubic yard has been greater than the results obtained by the prospecting indicated. A Keystone steam driller was used, but as to the experience of the men using it and the precautions they took to insure accurate results I know nothing.

THE PURCHASE OF ZINC ORES IN THE JOPLIN DISTRICT.

Written for the Engineering and Mining Journal by W. George Waring.

Zinc ores of the blende variety are now purchased largely upon their assay valuation, but not in any case as yet upon assays showing the actually available zinc contents of the ore. Until quite recently, and in some cases still, the valuation of zinc ores has been left to the judgment of the ore buyers, who are generally owners of freighting teams and have had long experience in the handling and inspection of "jack." Under the old method of grading by inspection, the team owner, or "jack buyer," in the course of his daily tours among the mines in his special beat, picks up handfuls of jig stuff from the bins and makes a mental comparison of the appearance of the ore with lots of proven value according to the smelter production, judging approximately the proportion of mundic (pyrite), flint, tiff (lime-spar) and galena that it carries, noting any changes that may be visible from day to day, thus arriving at a close estimate of the value of the lot when the bins are full, or when the weekly pay day is at hand. A liberal allowance for risks is then deducted, and, for the sake of additional safety, a further deduction based upon purely arbitrary considerations, such as the color of the ore, the supposed effects of exposure to the air and sunlight, or rain, the reputation of the locality, etc., is made, taking also into account the possibility of trickery on the part of the seller, and finally a price is named, which is usually accepted without question, as it but rarely happens that jack buyers trespass upon each other's domain. Moreover, the jack buyer is usually looked up to by the miner and mill owner as an expert (which he undoubtedly is in many ways), infallible in his judgment of ores, and an oracle of occult wisdom relating to spelter smelting and the nature of jack in its infinite varieties of name and matrix, whose advice is invaluable.

The rise in the prices paid for ores, beginning in 1898, and attributed to the Miners' Association, increased the risks attached to grading by inspection, and the practice of purchasing upon assay came into vogue. Smelters that never had employed a chemist before, even resorted to having occasional assays made to serve as a guide to their purchasing agents. Some employed a regular staff of chemists, while others continued to rely to a great extent upon purchase by inspection, and with some reason, because the mere determination of the metallic zinc contents of an ore, however accurately it is made, is not always an index of the percentage of spelter the ore will yield in actual smelting, and the judgment of an expert ore buyer, based upon his estimate of the zinc contents, and upon the experience of his employers in smelting ores of the same character, may sometimes afford a safer valuation than the mere zinc assay standing by itself.

The reason for this may not be far to seek. The actual available zinc contents of any zinc ore depends only in part upon the ordinary losses in smelting, due to volatilization into the air, or through cracks in the retorts, or to absorption into the retort material, or retention in the residuum. A marked difference in actual yield often exists between ores of the same grade, although the calcination and retorting may be exactly alike in both cases. The difference is probably due to the presence in the ore of an alkaline earth base (lime or baryta) which either exists in the ore as a sulphate, or is converted into a sulphate during the calcination process, and which in the zinc distillation process appears to yield its sulphur, in part, or wholly, to the zinc, rendering it incapable of reduction to the metallic state.

Several quantitative tests, made by the writer, show that one part of lime contained in blende ore, as carbonate, will combine with and retain in calcination from 0.4 to 0.7 part of sulphur. It has been estimated, from practical tests on a large scale, at one of the principal zinc smelters, that one part of lime in blende ore entails a loss of two parts of metallic zinc in smelting, over the ordinary losses.

Since the customary deduction for losses in smelting is, at present, one-fifth of the total zinc contents of the ore, whereas well-cleaned blende ores (jig stuff) in the Joplin District, rarely contain more than from 3 to 8 per cent. of rock material, including flint, lime-spar, and rarely, heavy-spar, it would seem that the ordinary assay for moisture, metallic zinc and metallic iron should suffice for all present requirements.

It is customary among ore buyers in the Joplin District to deduct 50c. per ton for each per cent. of lead present in zinc ore, and $1 for each per cent. of metallic iron in case the ore contains above 1 per cent. The smelting charges include at the present time freight and expenses and cost of smelting, which are lumped at $10.50 per ton of ore. To this is added a margin of profit varying from $4 to $8 per ton when spelter is quoted in St. Louis at 4s. per pound, or from $6 to $12 per ton when the spelter quotation is 6c. per pound. It should be noted, however, that the nominal cost of $10.50 per ton is applied equally to low and high grade ores, and the margin of profit, which is nominally $3 per ton, is increased in the case of low grade ores to cover extra losses and expenses incurred in reducing them. This will appear upon applying the pricing formula to various grades of ore.

VIEW AT CENTER CREEK, JOPLIN DISTRICT, MISSOURI.

The rational formula at present applied at leading smelteries to the valuation of ores is:

$$V = W Q - (E + P)$$

in which

W = 80 per cent. of the number of pounds of metallic zinc contained in a ton of the dry ore as found by assay. If the assay in percentage be A, then W = 16 A.

Q = the St. Louis spelter quotation per pound at time of purchase.

E = expense, freight and treatment cost ($10.50).

P = smelter profit, etc. = 100 Q when A = 60 per cent. or over, or when A is less than 60 per cent. P = 100 Q + (10 Q × 60 − A).

V = value of ore at mine, subject to deduction for iron or lead contents.

It will be seen that allowing 20 per cent. for loss, the total smelting charges upon 60 to 65 per cent. ore vary from $13.50 to $16.50 per ton, according to the spelter quotations, and upon 50 per cent. ore these charges vary from $16.50 to $22.50 per ton, according as the price of spelter varies from 3c. to 6c. per pound.

A purely empirical formula, in which the value of a ton of 60 per cent. zinc ore was considered to be exactly 7 times the St. Louis quotation for 100 lbs. of spelter, has been strongly urged by producers as being the fair thing, but it fails wholly in application to diverse conditions.

Carbonate ores (dry bone) are mined by stripping along the southeastern outcroppings of the zinc ore ranges, where the lower zinc bearing strata come to the surface. They are sold for $10 to $15 per ton, delivered at the railroad. Their zinc contents range from 40 to 48 per cent., and although these ores are mined usually in well wooded regions, and often many miles from the railroad, they are never calcined before shipment. The advantage of calcining on the ground, in stalls or kilns or even in heaps, seems to be persistently ignored, although this inexpensive procedure increases the zinc percentage about 30 per cent. and saves 25 per cent. in freight. Carbonate ores are not, as yet, sold upon an assay basis.

The selling of zinc ores upon an assay basis is, of course, the only rational system, when all the elements of proper valuation are taken into consideration, and the adoption of such a formula for pricing (as has been adopted for many years in Europe) is certainly a marked advance for the Missouri-Kansas District. One advantage noted as remarkable is the steady improvement in the grade and value of the ores produced by mines which sell entirely upon assay, and which have occasional analyses made of their jig product in order to control the mill work.

The sampling of ores sold upon assay is a very simple operation. The sample consists of a few shovelfuls of the moist jig stuff taken when it has been loaded in the railroad car, mixed together and quartered down to from 1 to 5 lbs. This is divided into three parts, in the presence of seller and buyer, one part being given to each party and one reserved against accident, or disagreement. The price to be paid, according to the tenor of the ore, having been previously agreed upon, each party has his sample assayed, and unless a variance of more than a few tenths of 1 per cent. appears, the average of the certified results is taken as the basis of settlement. The assayer also determines the moisture (the sample having been enclosed in an air-tight can, or jar) which fixes the dry weight of the lot of ore. The moisture in jig stuff, when ready for shipment, varies from 1 to 4 per cent., according to the amount of fine material it contains. Buddle, or sludge headings, when fresh, carry 10 to 12 per cent., and fine sludge concentrates from 12 to 17 per cent. of moisture.

VIEW AT CENTER CREEK, JOPLIN DISTRICT, MISSOURI.

INTERNATIONAL PETROLEUM CONGRESS AT PARIS.

A notice from the secretary anounces that on August 16th next the Congress will hold its opening meeting in Paris, and will continue in session on the following days up to the 28th. By the co-operation of the Worthington Pumping Engine Company these meetings will take place in a room in its pavilion, while accommodation will also be granted for correspondence, etc., to members attending the Congress.

A Reception Committee has been formed in Paris by the kind assistance of Mr. Henry Neuburger, which will take the necessary steps to arrange various visits and excursions and to look after the welfare and interests of members during the Congress.

The papers which will be read and discussed include the following:

1. "The Desirability of Recording the Depth of Wells in Relation to the Sea Level."
2. "The Desirability of Introducing a Standard Method of Examining Petroleum and Its Products for Technical and Commercial Purposes," by Mr. Boverton Redwood.
3. "Various Methods of Deep Boring," by Mr. Albert Fauck, of Vienna.
4. "The American Petroleum Industry," by Professor Chandler, of New York.
5. "The Examination of American Petroleum," by Professor Mabery, of Cleveland, O.
6. "Solid Hydrocarbons in Petroleum Residuals," by Professor Zaliozecki, of Lemberg.
7. "The Preparation of Lubricating Oils by Means of Concentration," by Mr. Berg, of Alsace.
8. "The Utilization of Petroleum Products for Preserving Timber," by Mr. A. Adiassevich.
9. "On Borneo Oil," by Mr. Paul Dvorkovitz.

In addition to these it is expected that Professor Engler will contribute a paper on "The Origin of Petroleum"; that Professor H. Hoeffer and Professor R. Zuber will read papers on "The Geology of Petroleum"; while Sir Fortescue Flannery will contribute a paper on "The Various Types of Tank Steamers Used for Carrying Oil in Bulk, and the Best Means of Ventilating Them." Professor Markovinokoff, the well-known chemical investigator into Russian petroleums, has also promised to submit a paper to the meeting.

The importance of this Congress has been so far recognized as to induce the Petroleum Association of Galicia to send a special delegate to represent them at the Congress, and it is expected that the Galizische Landesausschuss, the highest administrative body of the province, will also do the same. The Verein der Bortechniker (Society of Boring Engineers) of Vienna, which includes in its members the principal boring engineers throughout the world, will be specially represented by M. Jacques Baszanger, Paris, and the California Oil Association of Los Angeles has under consideration the appointment of a special delegate, while the Roumanian Government will, it is expected, be officially represented. Messrs. Nobel Brothers, of Russia, have likewise promised their full support and assistance in carrying the conference out to a successful issue.

A special department will be organized consisting of a display of various apparatus, appliances and tools employed in the different branches of the industry, specimens of petroleum obtained, sections of petroliferous strata from various oil-fields, geological maps and plans of the oil districts, together with the literature which has been produced in connection with petroleum.

Such an undertaking will necessarily involve not only a vast amount of time and thought, but also a considerable amount of money, and it is to meet such expendiurte that a special guarantee fund has been formed, to which already a number of prominent gentlemen and firms have subscribed.

The office of Mr. P. Dvorkovitz, the honorary secretary, is at No. 16 Devonshire Chambers, Bishopsgate Street, London, E. C., England.

NEW BLAST FURNACES IN WALES.—In the report of the Ebbw Vale Steel, Iron and Coal Company, in Wales, for the year ended March 31st, it is stated that the board have under consideration the re-modeling of the blast furnace plant, and the extensive introduction of electric power.

RUSSIAN MANGANESE ORE.—Recently the railroads which carries most of the manganese ore mined in the Caucasus raised the rate on ore from 7 to 10 kopeks per pood. This caused so much complaint from shippers that the Government has ordered a reduction to the old rate of 7 kopeks per pood from Scharopan to Tchiaturi.

SAULT STE. MARIE CANAL TRAFFIC.—The official reports show that the number of vessels passing through the canals at Sault Ste. Marie from the opening of navigation up to June 30th was 6,246, and the freight carried by them was, in net tons: Eastbound, 6,825,444 (78.7 per cent.); westbound, 1,848,037 (21.3 per cent.); total, 8,673,481 tons, which compares with 6,409,086 tons in 1899, and 5,321,812 tons in 1898. The chief items of mineral freight were, in net tons:

	1898.	1899.	1900.
Anthracite coal	122,656	257,319	229,062
Bituminous coal	1,051,328	696,227	1,422,601
Iron ore	3,722,548	3,917,675	5,475,267
Copper	45,544	26,135	42,331
Salt (in barrels)	114,117	133,287	94,215

There was a decrease of 28,257 tons (11 per cent.) in anthracite coal, but an increase of 726,374 tons (10.5 per cent.) in bituminous coal. The increase in iron ore was 1,557,592 tons, or 39.7 per cent.

THE INTERNATIONAL CONGRESS OF MINING AND METALLURGY AT PARIS.

(Continued from Page 6.)

An account of the opening of the Congress on June 18th was given in our last issue. In the Section of Mining after the papers on Explosives had been read, the subject taken up was the Uses of Electricity in Mines. A paper on the Employment of Electricity in Mines was read by M. Joseph Libert, Director of Mines at Namur. He referred to the various installations which had been carried out in Belgium for the transmission of power, pumping, elevating and working rock-drills and coal cutters by means of electricity, and said that except in the Est de Liege, the Esperance et Bonnefortune, and the Awyrs collieries, where triphase currents were employed, all the other installations were a continuous current. The tension of these latter varied from 500 to 650 volts, and of the triphase currents from 500 to 600 volts for the Est de Liege installation, 1,000 volts for the Esperance et Bonnefortune, and 2,000 volts for Awyrs colliery, which is now in course of being laid down. Most of the colliery companies prefer the continuous current, but there is no doubt that in the future polyphase currents will be generally employed as well on account of their security as of their economy. Nevertheless, electricians must have an intimate acquaintance with the conditions of underground working, so as to be in a position to avoid all danger from the employment of high-tension currents. As the installations so far have been carried out on a limited scale, little or no attention has been paid to the economy of electricity for underground working, but in the many new installations which are being laid down the colliery companies are seeing what economies they can effect in the employment of this power. Electric locomotives with accumulators have been tried with considerable success in the Amercoeur collieries. In only a few cases has any attempt been made to apply electricity to rock drills, though this has been successfully done in the Courcelles-Nord colliery, but it is not likely that this power will compete with compressed air for the working of drills for some time to come. Electric coal cutting has not been tried in Belgium because the seams are usually so thin as to render mechanical coal cutting impossible, and in any event the author did not think that the conditions of the Belgian mines would allow of electricity being used for such a purpose. The only electric lamp employed in Belgium is the Sussman, of which about 2,000 are in service in the Strepy-Brackquegnies, the Charbonnages Belge and Mariemont. The author gave a resume of the Belgian law relating to the employment of electricity underground, and described in detail various installations. He concluded by referring to the modification of the French laws relating to insulation, and said that all the difficulties would be overcome by employing triphase currents. The great trouble would be in insulating the cables for the movable machines, such as rock drills, coal cutting machines, and the like.

Herr Wolfgang Wedelin, chief engineer of Siemens & Halske, of Berlin, presented a paper on Electricity in the Mining Industry. He said that many of the old electrical installations in mines had failed to give satisfactory results on account of the great heat and damp, which rendered it extremely difficult to secure proper insulations, but now that these drawbacks have been overcome by effective ventilation, and electricians have improved their methods of insulation, there is no mine in which a satisfactory installation cannot be laid down. Herr Wedelin said that while the loss of energy in steam mains was as much as 40 per cent., and in haydraulic mains 20 per cent., the loss in electric conductors was not usually more than 5 per cent., while they never calculated for a loss of more than 10 per cent. even over considerable distances. Electrical transmission, moreover, was the only possible means of exploiting several pits of a colliery from a central generating station situated under the most favorable conditions for producing power economically. One such installation has been carried out by Siemens & Halske, at the Erzherzog Friedrich Mines, in the district of Ostram-Karwin, in Austria. The generating station produces 1,200 H. P., which will shortly be doubled, and the energy is transmitted over a distance of 9,000 m. with a tension of 12,000 volts. The employment of electricity in mines had been making considerable progress during the past few years, and it was calculated that at the present moment there were no fewer than 500 installations of the kind in Europe, and probably considerably more in America.

M. Peres described the electrical installation which had been carried out at the Carmaux collieries. The power required for the different operations was 1,200 H. P., and steam was raised in eight Belleville generators by means of waste gases from 114 coke ovens. The triphase current was employed, and as, at the moment of putting this project into execution, they had not been accustomed to high voltage, they limited the tension, for sake of security, to 240 volts.

The director of the Esperance colliery referred to the account which had been made by M. Libert of the electric installation laid down at his mine, and said that while the polyphase current had its advantages it possessed certain inconveniences, notably the difficulty of getting a sufficient initial power to start the pumps. This difficulty did not, of course, exist with the machines underground, and they could be started synchronometrically. For the transmission of power they must employ motors with a high initial power.

M. Majotier gave an account of the electric installations at the Grands-Combes colliery, in which he said that the most important feature was the winding gear for operating the trucks underground. This gear was one of the biggest of its kind, and was operated by a motor of 125 H. P.

In further discussion of this subject M. Duvivier spoke of the advantages of using this power in the development of the metalliferous mines in the Meurthe et Moselle, where the higher cost of coal naturally made the question a more important one than in the colliery districts.

M. Bresson described an installation which had been carried out at the Noeux collieries for the electrical transmission of power from a central station. The current was generated at a tension of 5,000 volts, and as it was carried some distance to the transformers special precaution had to be taken to avoid any liability to accident. He estimated that they transmitted energy equal to about 800 H. P. to the shaft 5 km. away with a loss of 4 per cent. After alluding to the various operations performed by the electrical motors, he said that the difficulties met with were more mechanical than electrical, and in the case of the dynamos they had obviated any danger of gases getting inside and taking fire from the sparks by rendering the dynamo case air tight, and keeping the air inside at a pressure of slightly over an atmosphere so that no gas could communicate with the dynamo.

The next topic taken up was the Working of Mines at Great Depths. On this subject papers were presented by Herr Hrabak, of Germany; M. Stassard, of Belgium; MM. Petit and Poussigue, of France. The most important of these was an elaborate report by M. Poussigue, of which we hope to present an abstract shortly.

The succeeding topic was Means for Reducing Manual Labor in Mines. Under this head a paper upon rock drills and coal cutters was read by M. A. Bachellery, who described the various machines in use in the United States. He estimated that 3,000 mechanical coal getters were used in that country, and they produced a fifth of the total extraction. Statistics showed that only those mines which employed mechanism for extracting coal steadily augmented their production, and another curious feature was that the mechanical coal getters increased the wages on account of an augmentation of the yield. This extensive employment of mechanism was one of the reasons why the United States had escaped the famine in coal, and was even preparing to export coal to Europe.

M. Fayol said that since the Societe de Commentry-Fourchamcault had acquired the Decauville Mines, which contained such hard coal that it was extremely difficult to extract it by the pick, they had been giving attention to the employment of coal-cutting machines. After trying various American machines, with no good results, they had devised a cutter of their own, which was in the form of a vertical saw in the shape of an elongated and irregular S. The height of this saw is 1.30 m. It is fixed on a frame connected at each end with a crank, to the shaft of which is fixed a wheel, and the two wheels are operated by a motor of 10 H. P. running at 1,500 revolutions. The whole is mounted on a truck, which advances automatically. The rate of cutting coal is from 6 to 10 m. an hour, but the experiments have not yet gone far enough to show whether it will be equally successful in hard coal.

M. Domage, director of the Societe Novelle de Charbonnage des Bouches du Rhone, described the operation of piercing the gallery at Gardanne to the sea, a distance of 15 km., by means of rock drills, and said that after trying the Berthet light drill they were obliged, in the calcareous rock, to return to much heavier drills. He concluded that the ideal rock drill had yet to be found, and suggested that it should be of light weight and worked by electricity.

M. Dejean gave a brief account of the results of his mission to the United States, at the instance of the French Ministers of Commerce, with a view of studying the different means employed of restricting manual labor in mines. He described all the different systems of coal-cutting machines and rock drills in operation in the United States, and said that with the same number of hands the production could be increased by 60 per cent., at the same time that the cost was reduced by 15 to 17 per cent.

M. Castelnau raised the question whether coal measures in France were at all comparable with those in the United States. Before introducing these coal-cutting machines it was desirable to know whether there was any reasonable hope of being able to employ them in the French mines, as if they introduced them without taking into account the conditions of working it might involve a considerable amount of unnecessary expense.

Professor Le Neve Foster asked whether it would not be possible to invent a machine something on the principle of the Boyer pneumatic hammer for the extraction of coal. For some years past a tool of this character, weighing not more than 10 kgs., had been employed in the Mansfield copper mine, and he thought that similar good results might be obtained in the collieries.

M. Domage said that he had tried exactly the same thing at Marseilles on the very hard rock with excellent results. Other suggestions were offered.

Under the head of Statistical Studies several valuable papers were presented.

The actual condition of the metallurgical industry in South Russia, with special reference to the work of development carried out at the Krivoi-Rog Mines, was the subject of a paper read by M. Martin Szynan-Krowsky, of St. Petersburg. He said that the opening up of the mineral resources of Russia had been greatly retarded by the law, which gave the ownership of the minerals underneath to the proprietor of the surface, who was not required to exploit these minerals himself or let others do so, and in the struggle for concessions there was so much manoeuvering that enormous expenses were incurred before anyone could obtain a right to carry out prospecting work. The author described the geological conditions of the Krivoi-Rog District, and gave statistics showing the remarkable development which has taken place in the mining industry in Russia during the past few years.

A paper was read upon a work of development being carried out by the Societe des Charbonnages de la Russie Meridonale, which was described as one of the oldest firms in the Donetz basin. The company was now producing 640,000 tons of coal a year. The method of working these mines was described, and the author stated that the principal difficulty they had to meet with was the question of labor. They had tried all sorts of mechanical means of extracting coal, but they could not get the Russian miners to handle the machines properly.

Dr. Douglas presented the statistical mining returns of the United States for the past year prepared by Mr. R. P. Rothwell, of New York, and regretted that Mr. Rothwell was unable himself to be present. He summarized these statistics in order to show the marvelous development of the mineral industry in the United States, and pointed to the economies that were effected as well in extraction as in the cost of transport. He then spoke of the value of comparative statistics as an aid to the examination of economical questions, since he held that the development of industries always ran in parallel lines, and it would be well if there could be a special bureau for this branch of statistical science.

Prof. Le Neve Foster regretted that Mr. Rothwell was not present to develop his idea of international mining statistics, but as he had sup-

ported his suggestion at previous congresses he would like to deal with the matter on the present occasion. What they wanted was uniformity in all countries with respect to the terms employed, such, for instance, as the "mine" and "quarry," which were not separated for statistical purposes in France as they were in England. Some countries mixed up coal and minerals, and in estimating the value gave the market price instead of the price at the pit's mouth as in England. If all the governments were to send delegates to a congress for dealing with this matter they would be able to settle upon a uniform classification in a few hours.

Prof. Henry Louis said that mineral statistics were not exact. Some countries gave the minerals and finished metals together, and others presented the minerals in different forms. This resulted in a confusion which rendered a study of the question almost impossible. To secure uniformity in statistics was a most important work.

M. Pellati thought that even with the present defective method of making returns it would be possible by making certain allowances to arrive at fairly accurate conclusions, and in all events a great step toward an international understanding would be arrived at by a general adoption of the metric system.

Continuing or extending this discussion to the questions of mining labor and accidents, M. Watteyne said that there was no difficulty in obtaining the number of hands engaged underground in France, Germany, Belgium and England, but as to the average number of men at work and other matters it was not easy to arrive at a satisfactory conclusion, and it would be very desirable if they could come to an international understanding.

M. Harbet called attention to the outbreak of an epidemic among the miners in his locality through their insanitary surroundings, and urged upon mines managers and directors the necessity of looking after the sanitary conditions of the mines, not only for the benefit of the men themselves, but also the companies, since when the miners were attacked by this malady their powers of production were considerably diminished.

M. Henri Fayol spoke of the necessity of exercising a careful selection of the managing body of a colliery, and regretted that mining engineers had to pass so much of their time and energy at the study of mathematics which was rarely of any use to them in their profession.

The President, M. Haton de la Goupilliere, agreed that the study of mathematics might be restricted, but he pointed out that mathematics were of great educational value, and said that the mining engineer who did not possess a knowledge of this science would never attain to the same level as the man who did. With reference to a proposal made by M. Kotzowsky to hold congresses every three years to discuss the question of fire damp, he moved a resolution approving of this suggestion, which was carried unanimously. He then read a letter from the Commission of the Exhibition of Liege of 1903 inviting the Congress of Mines and Metallurgy to participate in that undertaking.

In the Metallurgical Section the first subject taken up was Progress in the Metallurgy of Iron and Steel. Papers were read on the Manufacture of Special Steels, by M. Babu; on the Manufacture of Thomas (basic) Steel and its Effect on the Wrought Iron Industry, by M. Rocour; on the Deformation of Metals, by M. Hartmann; on the Present Conditions of Steel Manufacture, by M. Tissot.

A paper on the Utilization of Blast Furnace Gases, by M. Hubert, gave an elaborate report on the engines operated by blast furnace gases at the John Cockerill Works at Seraing, in Belgium. These engines have been described and an abstract of the report given in the "Engineering and Mining Journal," February 10th and June 9th, 1900.

The advantage of the direct utilization of the waste gases was generally accepted, but there was some discussion over the best form of gas engine. M. Hubert, in his paper, met the objections against the employment of poor gases in big engines by the deduction of M. Witz, and by his own experiments with the motors constructed by Cockerill, at Seraing, upon the Delamere-Debouteville & Malendrin system. The two principal mechanical objections were the difficulty of starting big motors, and the trouble arising from the admission of dust and steam from the furnace into the cylinder. In the case of the Cockerill engine shown at the Exhibition, and which develops 600 H. P. with waste gases and 1,000 H. P. when working with ordinary gas, the start is effected by means of a winding gear that brings the piston to the point of compression, and, as a measure of safety, the electric ignition cannot work until the starting apparatus is first thrown out of gear. The difficulty with respect to the admission of dust into the cylinder is overcome simply by the arrangement of the valves and the water-jacketing of the engines in every part. This lowers the temperature of the gas on admission and secures a greater density, and consequently a greater efficiency. During the trials carried out in March last by M. Hubert, assisted by Mr. Bryan Donkin and other experts, the Cockerill engine ran for several hours at 98 revolutions a minute without a single miss-fire, and the power developed was an average of 887 H. P., and at certain moments it went up to 900 H. P. The consumption of gas per indicated horse-power hour was an average of 2.333 cubic meters.

M. Hubert claims that it is only with the aid of single cylinder motors that it is possible to attain very high powers within a comparatively small volume, and the Otto and Oechelhauser engines of 600 H. P. now running with waste gases in Germany and the Grand Duchy of Luxemburg have several cylinders. The Cockerill Company has been requested by an American firm to present plans for an installation of 5,000 tons for a blast furnace producing 800 tons a day. The machine must deliver the blast under a pressure of 1.250 mm. of mercury. M. Hubert thinks that it would be very easy to carry out such an enterprise in a relatively small space by arranging the cylinders tandem fashion. While dealing generally with this method of utilizing waste gases he made the interesting deduction that this employment in motors would result in an economy of 8f. per ton of pig iron.

M. Emile Demenge argued on behalf of the two-cycle motor, which, he said, was much better able to solve the problem of the direct utilization of waste gases on account of its greater simplicity and fewer parts. The consumption of gas of 900 to 950 calories in the Oechelhauser motor of 600 H. P. does not exceed three cubic meters per effective horse-power, and the consumption of water for cooling is 35 liters. This motor, according to M. Demenge, can go up to 1,500 H. P. with a cylinder diameter of 1.200 meters. The fact that orders have been received for engines of an aggregate power of 18,000 H. P. goes to show that there is plenty of warrant for the claims put forward on behalf of this system, and M. Demenge urged, as a matter of historical accuracy, that Oechelhauser had anticipated Cockerill in the building of these big waste gas engines.

Under Application of Electricity to Metallurgy, a paper on Aluminum Reduction was presented by M. Heroult.

Under the subject of Mechanical Applications, Dr. Wedding read a paper on the magnetic separation of iron ores. He said that iron ores obtained by mechanical preparation were nearly always unutilized because they were produced in a state of fine grains which could not be treated in the blast furnace in any large quantities. This was why the purple ore, one of the purest of minerals, could very rarely be used. The metallic bodies were divided into two classes, the paramagnetic, or simple magnetic, and the diamagnetic, which were those repelled by the magnet. All the iron ores—with the exception of magnetites, which were, of course, strongly magnetic—were magnetic in a small degree, and this was the case even with pyrites, which for a long time had been regarded as diamagnetic. Herr Wedding then described the various systems of mechanical separation, including the Edison and the Wetherill processes. He said that if the grains of mineral were to be thoroughly separated it was necessary that they should be pure, and in order to know the size of the grains to which the mineral should be reduced for treatment it was advisable to examine them with a microscope. In treating ores mixed with pyrites Herr Wedding had obtained good results by, first of all, partially roasting the ore so as to eliminate the sulphur, and among other of his tests he found that a large number of minerals, which could only be separated with difficulty by the magnet when dry, could be easily treated when they were held in suspension in water. He thought that there was a vast field open for good and useful inventions for the magnetic separation of minerals, and there was also a great deal to be done in utilizing the very fine ore obtained by these processes in the blast furnace without considerably diminishing the production or augmenting the cost of fuel. The only satisfactory solution seemed to be to transform the fine ore into compact masses, and it had been proposed to manufacture briquettes by means of a mixture of argillaceous cement, but the results had not been satisfactory any more than the other methods of using hydrated lime and silicious matters. The trials of Herr Wedding with a mixture of very fine grains of iron ore and coal had failed, but with certain other bodies containing carbon, such as tar and petroleum or cellulose by-products, he has succeeded on condition of first of all raising the materials to a relatively high temperature and subjecting them to a great pressure. He could only, however, get a solid product with very fine grains of mineral, so that in this sense the magnetic preparation gave the best results. He confessed, however, that these trials were still incomplete, and required to be followed up on a larger scale.

M. Smits, of Dusseldorf, gave a description of the Wetherill process of magnetic separation, and described the results that had been obtained with installations on this system.

Professor Henry Louis stated that, with reference to M. Wedding's report, he had occupied himself a great deal with the magnetic separation of iron ores, and one mineral which had been overlooked was limonite. As the result of numerous experiments he was convinced that in certain cases limonite was nearly as magnetic as magnetite itself.

M. Pallati described the works for the treatment of zinc and lead ores which had been established in recent years at the mines of the Island of Sardinia.

Other interesting points were brought up in the discussion.

At the concluding general session of the Congress, the suggestion made by M. Haton de la Goupilliere was approved, and it was decided to hold meetings regularly hereafter at intervals of three years; the next meeting to assemble at Liege in Belgium, in 1903. A permanent committee was appointed to make all necessary arrangements.

RECENT DECISIONS AFFECTING THE MINING INDUSTRIES.

Specially Reported for the Engineering and Mining Journal.

ACTION OF MINORITY DIRECTORS VOID IN CALIFORNIA.—Under the laws of California (Civil Code, sections 305, 303), requiring all mining corporations to have at least five directors, and invalidating all acts done by less than a majority, excepting the filling of vacancies in the board, an act of two directors in employing a watchman to guard the corporation's property is void, though there were no vacancies in the board of five directors.—Brown vs. Valley View Mining Company (60 Pacific Reporter, 424); Supreme Court of California.

POWER OF LEGISLATURE REGARDING SAFETY APPLIANCES.—In a prosecution for violation of the laws of Montana (Laws of 1897, page 245), making it unlawful for a corporation to work through a vertical shaft where mining cages are used to a greater depth than 300 ft., unless such cage shall be provided with an iron-bonneted safety cage, evidence that such devices or cages would be dangerous is inadmissible, since the question whether such appliances were the best or wisest method is for the legislature to decide.—State vs. Anaconda Copper Mining Company (59 Pacific Reporter, 854); Supreme Court of Montana.

MINING PARTNERSHIPS IN CALIFORNIA BY IMPLICATION.—In an action for dissolution of an alleged mining partnership, plaintiff having shown that he purchased a one-half interest in same from the former owner, through a husband, who caused the other half to be deeded to his wife, and that plaintiff and the husband, who claimed to act as the agent of his wife, worked on the mine, extracting mineral, and that the wife had made statements to third parties that she owned

an interest in the mine and that her husband was her agent, the trial court erred in nonsuiting the plaintiff on the grounds that he had not shown a partnership, since the jury might have found that a mining partnership existed, within the meaning of the laws of California (Civil Code, sections 2511, 2512), providing that a mining partnership exists when persons own a mine for the purpose of working it, and actually do work it, though no express agreement of partnership exists.—Ferris vs. Baker (59 Pacific Reporter, 937); Supreme Court of California.

VOID CONTRACT REGARDING MINING INTEREST.—A former owner of an interest in a mine executed a bond for a deed to R. and afterward conveyed the same interest to W., notwithstanding R.'s claim. The latter being desirous of bringing an action against W., to recover such interest, and it being necessary to prove in such suit that W. purchased the interest with knowledge of R.'s rights, and that the latter had tendered to W. the amount necessary to entitle him to a deed under his bond, the original owner agreed with R.'s attorney to deliver to him certain letters of W. showing that W. had had notice of the rights of R. in consideration of the agreement of the attorney to pay a certain portion of any recovery in the contemplated suit. R. was enabled to prove the tender by one witness, who could not be contradicted except by the original owner, who as a part of his agreement assumed a hostile attitude to W. so as to prevent his being called as a witness by him though it was agreed that he should not testify for R. and that though a nominal party to the suit, no recovery should be had against him. This party afterward having sued for his share of the recovery, according to the agreement with the attorney, the court held that the agreement was not a contract for the sale of documentary evidence only, but an agreement to suppress testimony, and was therefore void, as against public policy.—Young vs. Thomson (59 Pacific Reporter, 1030); Court of Appeals of Colorado.

WHEN MINING INTEREST IS NOT SUBJECT TO LIEN.—Where the evidence failed to show that a mine was being worked under a contract by which C. was in any way liable for the labor performed or material furnished for same, but clearly established that it was being operated by two others under a recorded lease, in which C. had no interest, and such labor, etc., were furnished for the exclusive use and benefit, C.'s interest in the mine was not subject to a lien for same, though he owned a one-fourth interest in the mine, and was cognizant of the work, and to some extent, while employed as a bookkeeper for the lessees, took part in its direction in their absence, and gave orders for merchandise in their name, but failed to notify the parties dealing with them of his true relation.—Davidson vs. Jennings (60 Pacific Reporter, 354); Supreme Court of Colorado.

A complaint in an action to enforce a mechanics' lien on a mining claim, showing that the complainants were employed by and rendered services for the lessees of the owner of the property, states no cause of action against the property.—Schweitzer vs. Mansfield (59 Pacific Reporter, 843); Court of Appeals of Colorado.

A complaint by miners to enforce a miners' lien against the owner of the mine, alleging that they had been employed by its sub-lessee in accordance with the provisions of the original lease, and that their wages had not been paid, but failing to show that the owner of the claim was connected with the contracted employment, or in any manner obligated for the payment of their wages, is insufficient to hold him, or his interest in the property.—Little Valeria Gold Mining and Milling Company (59 Pacific Reporter, 970); Court of Appeals of Colorado.

ABSTRACTS OF OFFICIAL REPORTS.

Ontario Silver Mining Company, Utah.

The report of this company is for the year 1899. The total tonnage of ore mined during the year was 12,205 tons, dry weight, of which 10,247 tons were sold to the smelters, leaving 1,958 tons on hand. The contents of this ore were 607,237 oz. fine silver and 685 oz. gold. There were also 15,366 tons tailings worked in the mill, yielding 113,153 oz. of silver and 344 oz. gold. The total yield for the year was 720,390 oz. silver and 1,029 oz. gold. In working the tailings the average recovery was 70.65 per cent. of the assay value. The average receipts were $4.96 per ton, and the costs $4.01, leaving $0.95 per ton net. The total value recovered from these tailings was $76,226; expenses, $61,633; net, $14,593.

The statement of recovery and costs is as follows, the costs being calculated on 12,205 tons mined, and the value on 10,247 tons sold:

	Total.	Per ton.
Receipts on ore sold	$288,091	$28.11
Mill account	$12,691	$1.04
Mine account	93,349	7.65
Prospecting	41,933	3.44
Tunnel No. 2	2,222	0.18
General expenses	30,081	2.46
Electric light	1,757	0.14
Dam expenses	412	0.03
Total expenses	$182,375	$14.94
Less expenses—ore on hand	29,252	14.94
Balance	$153,123	$14.94
Ore expenses	18,894	1.84
Total	$172,017	$16.78
Net earnings	$116,074	$11.33

Adding $14,593, gain on tailings as above, gives a total profit of $130,667 for the year. The profit and loss account was as follows: Profit for the year, $130,667; tailings receipts for 1898, less expenses, $28,193; material and property sold, $10,597; balance from previous year, $255,337; total, $424,794. The payments were, for the protection of property, $4,248; dividend (No. 217), $15,000; total, $19,248, leaving a balance of $405,546 at the close of the year.

Since its incorporation in 1877 the company has mined 575,529 tons of ore, from which it obtained 35,050,524 oz. fine silver, which sold for $32,074,893. The total amount paid in dividends was $13,572,500.

A large amount of prospecting and development work was done during the year, with varying results. Superintendent R. C. Chambers' report says, in part: "Nothing has been done on the 1,600-ft. level since last report. At that time it was opened from Shaft No. 2 with 500 ft. drifting on vein and 190 ft. of cross cutting. Only a small amount of stoping has been done in the past. These stopes are going to yield a large quantity of ore of good grade, so that there will be a large profit in working this end of the ground. This is the lowest level yet reached and the width and strength of the ore channel at this point is a good reason for concluding that it will continue for a much greater depth.

"During the year past the drift on the main vein at the 1,500-ft. level has ben extended west 800 ft. Some stoping has been done at a point about 1,200 ft. west of Shaft No. 3. The ore channel here is very wide, and the ore not so concentrated as in some of the levels above. This increases the cost of mining somewhat, still the yield of this level will compare very favorably with some of the richer ones above. The west end of the level is at about the point where Spur No. 1 leaves the main vein. Several cross-cuts have been run on this level from the tunnel drift, prospecting for ore, making in all about 700 ft. During the past year there has been dead work in extending the mine levels, in cross-cuts, drifts and raises done to the amount of 4,128 ft., much of which has given us but little ore. However, it was necessary and has developed some very good stoping ground for the future. The working parts of the mine are in good repair and show ore bodies amply sufficient to keep up a steady output as in the past for two years to come.

"Drain tunnel No. 1 is kept in good repair throughout as far west as the west line of the Daly Company ground. We expect to lessen the expense of hauling ore to the mills or shipping ore to the sampling works. This tunnel can also be used for tramming supplies to the mine. During the past year drain tunnel No. 2 has been kept in good repair, which has required the constant work of 4 men, and at times the force had to be increased to 8 men, taking care of caves and replacing rotten timbers. The flow of water frum this tunnel the past year has decreased at least 1,000 gals. per minute. At the White Pine water works, the reservoir dams and pipe line are in good repair. I fear, however, our supply of water wil be short in consequence of the snows in the mountains being lighter than the oldest settler has known.

"The curtailment of work on the Ontario and Daly properties has very much diminished the market for the product of the Weber Coal Company mines, four-sevenths of which are owned by the Ontario Company. Notwithstanding this fact and the fierce competition in the coal market the operations for 1899 have enabled us to keep the mines open and in good condition for future use at a minimum of cost. This property consists of 811 acres of coal land and a well equipped plant, capable of handling 500 tons or more of coal every 24 hours. The mine has reserves sufficient for many years. . . .

"During the past year it became apparent that the large amount of silicious ores in the mine could not be profitably sold to the smelters; also, that we might reasonably expect higher treatment charges on oil classes of ore by the smelting combine, after present contracts had expired. Therefore we deemed it advisable to put the Ontario Mill in condition for operation. Furnace No. 2 (which was almost rotten from non-use and the infusion of salt) and the greater part of the dust chambers were rebuilt in October and November, at a cost of $4,822. The repairs also included the renewal of large sections of the roof and such other parts of the building as required it. The mill is now ready for a long run on Ontario ore, whenever it may be advantageous to use it.

"Having been compelled to stop working Ontario tailings at the Marsac Mill, owing to the hard freezing of the tailings, this mill was continued in operation, after about the middle of January, 1900, upon Ontario ore. This action was taken for the mutual advantage of both the Ontario and Daly Companies. On the one hand, the Marsac Mill furnace would not stand a cooling down and non-use for several months without crumbling and probably falling, and on the other hand, the unexpected short water supply (before referred to) raises a doubt as to our running the Ontario Mill continuously and to its full capacity. The Marsac Mill handles our ores as economically as the Ontario Mill, and may continue until next June or July."

TRADE-MARKS IN DENMARK.—The British Consul at Copenhagen calls the attention of persons connected with the export trade to Denmark to the desirability of having their trade marks and designs properly registered there. The cost of registration of trade marks according to the Danish law only amounts to about $25, including fees.

ELECTRIC HEATING.—A new form of resistance for electric heating apparatus is said to have been devised by M. Parville, says the London "Engineer." It consists of a mixture of 60 parts nickel in powder and 40 parts of white clay. The mixture, which contains not more than 6 per cent. of water, is brought to the desired form by compression, using a pressure of 2,000 lbs. per square inch. The parts which form the contact points are made by a mixture of 90 per cent. of nickel powder and 10 per cent. of clay, in order to diminish the resistance at these points. As it is necessary that a resistance of this kind should not melt under the action of heat or otherwise deteriorate, the solidity possessed by the new compound is greatly in its favor.

SPANISH PATENT LAWS.—The Spanish patent laws are very unsatisfactory to foreign machine builders, says the London "Engineer." These laws allow any machine, process or manufactured article to be patented, whether it be a bona fide invention or not, provided it has not been already built, or carried out in Spain. The fact of its being common property elsewhere is no bar to granting the patent. Patents are granted for a principle without requiring any indication as to how this is to be carried out practically. The consequence is that many machines patented in other countries for manufacturing goods in common use cannot be introduced into Spain simply because a patent has been taken out to manufacture these goods; therefore, though the machine itself it not the object of any patent in this country, yet as its product is thus protected, no one can use it except the holder of the patent.

SINKING THROUGH QUICKSAND AT AN AUSTRIAN COLLIERY.*

In sinking a shaft at Sollenau, in Lower Austria, to tap a seam of lignite at a depth of 205 m. (672 ft.) special difficulties were encountered, more particularly in traversing a bed of quicksand 22 ft. in thickness at a distance of 510 ft. below the surface. The task of overcoming these difficulties involved the consideration of several points, among them being the small sectional area of the shaft; the difficulty of enlarging it in view of the loose nature of the ground; the inapplicability of refrigeration methods under the peculiar circumstances of the case; the necessity of leaving enough free space on the shaft sole to provide room for twelve piles to support the timbering; and the weakness of the winding engine, which precluded the lowering of greater weight than 1,250 lbs. at a time.

The method adopted was by employing a wrought-iron caisson made of 0.4-in. plate, driven into the quicksand. On the outside the caisson was strengthened with 32 vertical T irons, 3¾ in. broad, and of equal height, and tapered off at the lower cutting edge. On the inner side, at about 40 in. above the lower edge, four channel-iron traverses were arranged round the walls, being mutually strengthened by tie plates and angle irons, and mounted on 32 brackets, also tapered off toward the cutting edge. A number of movable transverse wooden struts were also inserted to strengthen the walls. The dimensions of the caisson had to be equal to the inside diameter of the shaft, 15.7 by 6 ft., plus the thickness of the 10 in. larch logs employed for lining the shaft.

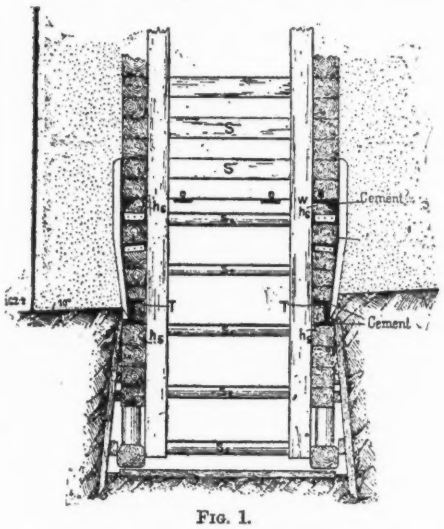


FIG. 1.

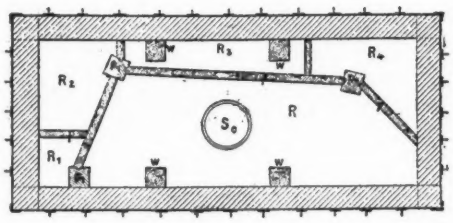


FIG 4.

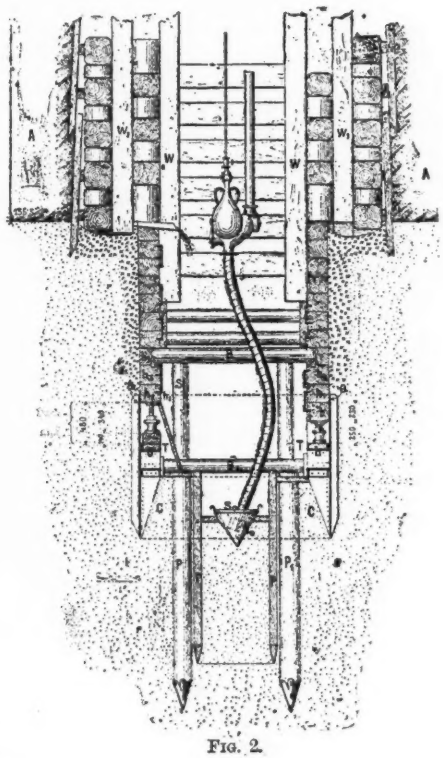


FIG. 2.

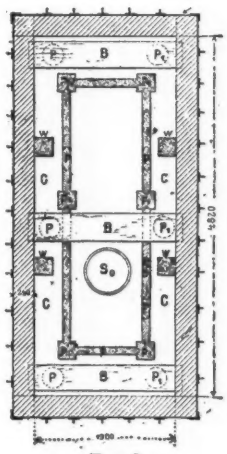


FIG. 3.

SHAFT SINKING THROUGH QUICKSAND.

The walls were constructed in 10 sections, which were lowered into the shaft and there bolted together, the heads of the bolts and rivets in the extreme upper and lower outside parts being countersunk to diminish friction and enable the abutment to be more effectually tightened against the shaft walls. The caisson was forced downward by means of about 30 strong squat screw-jacks resting against the channel-iron traverses—which received a facing of wood for protection—and worked by bent spanners about 40 in. long.

For the purpose of fitting up the caisson in the shaft a chamber A (Fig. 2), about 6.5 ft. high and 44 in. wider than the shaft all round, was excavated in the marl strata overlying the quicksand, the walls being kept up by means of curbs and other strengthening timbers. The caisson was driven its own depth in the sand in the course of eight days, and while the shaft was thus laid bare were being timbered, the advance was continued. When the distance between the abutment and the traverses in the caisson had increased to 20 in., the screw-jacks were released, and after the joints between the caisson and the timbers had been sufficiently packed with waste and wedges, at a (Fig. 2), a fresh curb, h, of 9 in. by 10 in. larch posts was put in and tightened with pack-thread against the one above. At the instant of putting in the fresh curbs in each case, the caisson projected over the previous one for about 3½ in., and consequently there was never at any time an exposure of the quicksand walls.

In Fig. 1 the condition of the timbering before the insertion of the abutment curbs is shown on the left hand, while the right half represents the state of things subsequent to that operation. Of course, directly before the screw-jacks were removed, the entire set of upper timbering had to be supported, a task fulfilled by the six piles, P P_1 (driven about 10 ft. into the sand), aided by the trestles, B B_1 (Figs. 2 and 3) and the prop, S, each curb that was on a lower level than the trestle, B (Fig. 2), being suspended on strong iron clamps.

When, in the course of this part of the work, the boarded sole inside the caisson arrived at the level of the upper edge of the main traverses, T, a great frictional resistance arose in forcing down the caisson, a cut was carefully made in the sole, and boarded all round the shaft, a proceeding which obviated the difficulty of keeping up the timbers.

In order further to have control over the quicksand ascending through the sole, and to increase the imperfect resistance of the caisson to the effects of lateral thrust, as well as provide a sort of guide for the descent of the caisson, a small advance sump shaft, consisting of piles, p p_1, was driven parallel to the shaft walls (Figs. 2 and 3), whereby not only was the loose sand in the sole strongly compressed, but also the bulging of the caisson prevented, and at the same time the collected water—pumped up by the pulsometer from a funnel-shaped drum, S (Figs, 1, 2, 3)—was strained, to some extent, from sand. This advance shaft was composed of 3-in. posts, p, about 9 ft. long, shod with sheet iron and guided by the long square corner piles, p_1. The piles were driven by the aid of a pile-driver weighing about 450 lbs. guided by a rod passing through its center and worked by hand, or, in the case of the winding compartment of the shaft, by the winch and winding rope, the rate of driving in the former case being 27 ft. per 7 hours' shift(9 men), and in the latter, 59 ft. (2 men). The earth within the resulting dam was easily removed, leaving a pit for the water to drain into, great care being, however, necessary in taking out the sand between the caisson and the outside of the dam (at C, Figs. 2 and 3), to prevent an inrush of quicksand.

Great difficulty was experienced in sinking through the lower stratum of marl, owing to the hydrostatic pressure in the quicksand, and to the necessity for clearing the sole to some depth below the traverses, in places, to make way for the cutting edge of the caisson, which was partly jammed by the marl. For this purpose the sole had to be divided by means of several pile dams to enable the rock to be taken out to varying depths. Thus in the compartment, R (Fig. 4), the sole was taken out down to the cutter, whereas in R_1 the depth of the hole was 12 in. less. Owing to the upward creep in R_2, R_3, and R_4, the sole had to be left planked up to the level of the main traverses until the cutter penetrated far enough into the marl to enable these compartments to be cleared.

As anticipated, the caisson was insufficiently capable of resisting the external pressure in the lower portion, and began to bend inward; but as it was designedly made about 10 in. wider than the final diameter of the shaft, it was found possible to strengthen the lower edge, after completing the work of sinking, by means of a vertical traverse, T. The manner in which the caisson was finally built in and abandoned on entering the marl is shown in Fig. 1, and it is only necessary to state that the cutter was forced tightly into the wooden curb, h_5, and cemented. The space occupied by the screw-jacks was afterward lined with a wedge-shaped timber, h_6, and the space between the latter and the caisson wall filled with cement through the apertures, o, the caisson being then strengthened with timbers, W, and struts, S S_1.

The deviation from the vertical, including the bulging of the caisson, amounted to only about 4 in. at the ends and 7 in. at the shaft sides, in sinking through a depth of 23 ft.; so that, as the caisson was 10 in. wider than the shaft, the deviation remained within the anticipated limits.

*Abstract of article in the London "Colliery Guardian."

GAS PRICES IN ENGLAND.—One result of the high prices of coal in England has been a general increase in the rates charged for gas. The gas companies have generally added from 10 to 20 per cent. to their rates. In London the price is now from 82 to 92c. per 1,000 cub. ft.

MINERAL COLLECTORS' AND PROSPECTORS' COLUMN.

(We shall be pleased to receive specimens of ores and minerals, and to describe and classify them, as far as possible. We shall be pleased to receive descriptions of minerals and correspondence relating to them. Photographs of unusual specimens, crystals, nuggets and the like will be reproduced whenever possible. Specimens should be of moderate size and should be sent prepaid; we cannot undertake to return them. If analyses are wanted we will turn specimens over to a competent assayer, should our correspondent instruct us to do so and send the necessary money.—Editor E. & M. J.)

169.—Basalt Columns.—According to the Geological Survey of New Jersey, basalt columns from 1 to 5 ft. in diameter and 20 ft. long have been found in O'Rourke's trap quarry at Orange. Fine basalt columns have also been found near Caldwell, N. J.

170.—Micaceous Schist.—J. R. S.—Your specimen is an ordinary micaceous schist, stained with iron. Such rock is very common all through Westchester and Putnam counties in New York, and does not indicate the presence of iron ore.

171.—Claystones.—Writing of the collections of the Geological Survey of New Jersey in the "Mineral Collector," W. S. Valiant says: "The claystones are so called, not because they are made of clay, because they are found in clay. Their composition is mostly carbonate of lime. I have found concretions in clay slate from the size of a mustard seed up to 4 ft. in diameter. These were also calcareous, and some of them, when cut and polished, are called turtle stones, and septaria. Some claystones are made of concentric layers, which often contain a loose concretion in the center, making a rattle box. Others are composed of layers corresponding to the lamination of the clay in which they are found. They also imitate the form of rings, buttons, spikes, dumb-bells, hearts, bossed shields, collar buttons, grapes, beads, cones, horns and other things. We have concretions which were formed in lava, trap rock, granite, gneiss, schist, porphyry, iron ores, shales, sandstones, limestones, gravel and sand, and hot spring deposits. Some are composed of anthracite, pyrite, vivianite, limonite, siderite, calcite, aragonite, apatite, flint and agate."

172.—"Mortised Rocks" of Tyringham, Mass.—B. K. Emerson writes in the "Mineral Collector" as follows: "At Tyringham, Mass., quartz pseudomorph after plagioclase is found, penetrated by square cavities from which salite has been removed. In these most remarkable specimens great masses of clear veined quartz are penetrated by square cavities from which large crystals of salite have been dissolved, while the quartz prove to be pseudomorph after large masses of plagioclase, presumably albite. The replacement is so delicately perfect that the twin structure is perfectly preserved, exactly as in cleavage surfaces of albite. This twin striation appears over large areas and is absent over other large areas, and the alternation occurs both in the direction of and at right angles to the striation. . . . Many of the quartz fragments split into large, acute, wedge-shaped pieces, which are aggregated in alternate arrangement of the separate wedges exactly like the Clevelandite variety of albite from the tourmaline-pegmatite veins.

"The Tyringham specimens present an interesting and complete series, showing the alteration and disappearance of the pyroxene. There are, first, masses in which the long, white, four-sided prisms of salite, sometimes slightly truncated at the edge and distinctly striated on some faces, are from a ½ to ¼ in. in thickness and several inches long, loosely aggregated, and passing into a compact salite rock. There are other specimens in which the same white prisms are inclosed in white or smoky quartz. They show the very strong basal parting of salite, and are often 1 in. across. They can be seen to be in some places wholly or partly replaced by a secondary tremolite or pale-green actinolite, and the quartz show distinct traces of the tabular form and the twin striation of albite. In other specimens the whole or almost the whole of the salite is dissolved, and the cavities take sharp casts of the longitudinal striation of the crystals as well as of the transverse partings which cross the cavity with the proper obliquity of the basal section of salite. These specimens were found at Sodom, in the upper end of the Tyringham Valley in Western Massachusetts, in the pre-Cambrian limestone."

QUESTIONS AND ANSWERS.

(Queries should relate to matters within our special province, such as mining, metallurgy, chemistry, geology, etc.; preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot give professional advice, which should be obtained from a consulting expert. Nor can we give advice about mining companies or mining stock. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers must send their names and addresses. Preference will, of course, always be given to questions submitted by subscribers.—Editor E. & M. J.)

Stamp Mill Mortars.—1. Can you refer me to a detailed description of the concrete mortar block reported to have been tried in South Africa.

2. Will you refer me to any articles on Comparative Tests of Single vs. Double Issue Mortars there may be extant.—W. N. C.

Answer.—1. Concrete mortar blocks are used in the new Alaska Treadwell stamp mill at Douglas Island, Alaska. They are also used in a stamp mill at Oroville, California. A description of these blocks will be found in "The Mineral Industry," Volume VIII., pages 751-752.

2. Double issue mortars have been tested in many places, but in wet crushing no special advantage has been realized. You will find particulars in relation to double-discharge mortars in T. A. Rickard's "Stamp Milling of Gold Ores."

Zinc Smelting With Gas.—Can you tell me anything about the furnaces used in smelting zinc ores with natural gas as fuel?—T. C. L.

Answer.—Natural gas has been used in smelting zinc ores at Iola and Cherryvale in Kansas, and at several smelting works in Indiana. "The Mineral Industry," Volume VIII., says: "The use of natural gas in zinc smelting is still so new that no fixed practice can be considered as yet established. The distillation furnace employed at Iola is generally a long double furnace with 300 retorts per side, arranged in 5 rows of 60 each. Originally the gas was admitted at one end and the products of combustion were allowed to escape at the opposite end, air being introduced at intervals along the front of the furnace. More recently these furnaces have been designed for the introduction of gas at intervals in their length, as well as at the end, and the air for combustion is forced in by a blower. At Cherryvale, Kansas, and generally in Indiana, the natural gas fired furnaces have 100 retorts per side, arranged in 5 rows of 20 each."

Christmas Island Phosphates.—Can you give some reliable information about Christmas Island phosphates, the extent of its beds, analyses and facilities for shipping? This is of great interest to the trade in the United States and reports are meager and conflicting. Our Australian friends write that this product will supersede American entirely for that market and Japan, while miners here say it can only mine two cargoes a year.

Answer.—Christmas Island has heretofore been very little known, as it has not been inhabited, and had only very occasional visits from vessels or explorers until the recent accidental discovery of phosphate beds on the island. From the information already at hand the phosphate beds, so far as they have been explored, are extensive, though their full extent has not been determined. Late accounts say that work is limited by the crude methods employed. The loose pebbles or stones in which the phosphate of lime occurs are shoveled by hand into trucks ready for shipment. It is claimed that the average stone carries 86 per cent. phosphat of lime and 4 per cent. iron and alumina and sometimes as high as 92 per cent. phosphate and 6 per cent. iron and alumina. The freight rate to London is about 35s. ($8.40 per ton). It is expected that the production for the current year will be from 25,000 to 30,000 tons. All of this has been contracted for. The island is leased by Sir John Murray and Mr. George Clunie Ross, who have organized under the name of the Christmas Island Phosphate Company. Andrew Hunter & Co., of London, are the agents for this company. We hope soon to give some account of this island.

COAL PRICES IN ENGLAND.—It is reported that the Lancashire & Yorkshire and the North-Eastern Railway companies have agreed with South Yorkshire coal owners to pay 16s. per ton for best Barnsley hard coal, and the Midland Company have so far refused to contract at this price, and are reported to be buying freely in Derbyshire, though the bulk of their requirements is still unsatisfied. The Yorkshire market price is a trifle higher than that of other districts, but the railway companies are only being called upon to pay the average market advance. This increased price, says the "Times," will make a difference of £100,000 each to the two companies which have accepted the tenders in the railway year over which the contracts extend.

PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects, issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

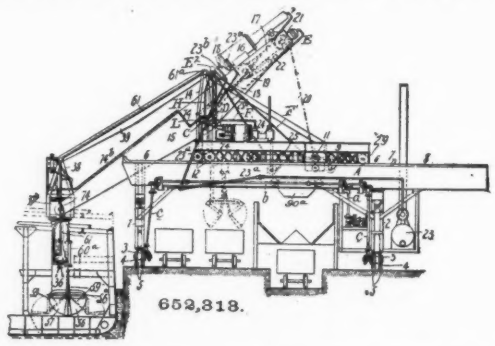
Week Ending June 26th, 1900.

652,304. LIQUID AIR GENERATOR. Charles E. Tripler, New York, N. Y. The combination with a receiver provided with diametrically opposite orifices, of hollow stems in line with said orifices, and a cleaning wire extending through the stems and orifices in the receiver.

652,309. BATTERY COMPOUND. Henry Blumenberg, Jr., New York, N. Y. A battery compound composed of a chloride of the metals of the alkalies or alkali-earth metals, a sulphate of aluminum and a chlorate of the metals of the alkalies or alkali-earth metals.

652,312. BUCKET FOR LOADING OR UNLOADING APPARATUS. George H. Hulett, Akron, Ohio. A bucket comprising a body portion and an independently movable bottom constructed and adapted to pass through said body portion.

652,313. APPARATUS FOR HANDLING ORE. George H. Hulett, Akron, Ohio, assignor of one-half to the Webster, Camp & Lane Machine Company, same place. In an unloading apparatus, the combination with a leg, a motor for moving same vertically, and a bucket on the lower end of said leg, of devices located within said leg for controlling said motor.



652,318.

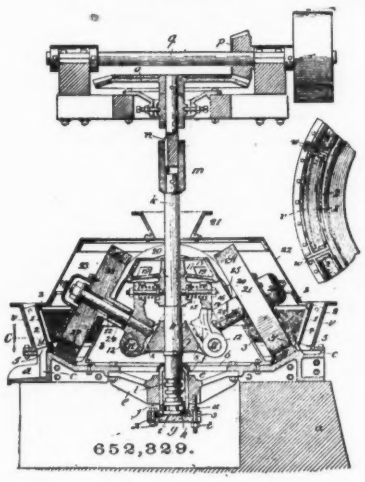
652,314. LOADING OR UNLOADING APPARATUS. George H. Hulett, Akron, Ohio, assignor of one-half to the Webster, Camp & Lane Machine Company, same place. The combination with means for inverting a car and an apron on which the load is to be discharged, of fixed distributers on said apron for deflecting the material into several buckets, and adjustable deflectors co-operating with said fixed distributers to insure the even distribution of the material to the several buckets, regardless of the character of car being used and the disposition of the load therein.

652,315. TRUCK OR PUSHER FOR PROPELLING ORE OR COAL CARS UP TO ELEVATED DUMPING PLATFORMS. George H. Hulett,

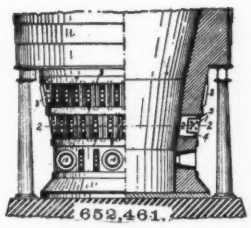
Akron, Ohio, assignor of one-half to the Webster, Camp & Lane Machine Company, same place. A pusher comprising a truck and a diagonally disposed strut pivoted to the rear part of the truck and projecting beyond the forward end thereof.

652,316. MEANS FOR DUMPING CONTENTS OF CARS. George H. Hulett, Akron, Ohio, assignor of one-half to the Webster, Camp & Lane Machine Company, same place. The combination with a cradle for inverting a car, of an inclined platform independent of the cradle and laterally adjustable deflectors on said platform.

652,329. PULVERIZING MACHINE. George Raymond, Chicago, Ill. The combination with a grinding bed, of a rotary actuating shaft, a grinding roll supported to extend over said bed and journaled on a spindle inclining downward toward said shaft, a bearing for the inner end of said spindle pivotally connected with the shaft and



652,829.



652,461.

having an upwardly projecting lever arm, a hub on the shaft, means connecting said lever arm with said hub and operative to turn said lever arm on its pivotal support and thereby raise the roll bodily with relation to the grinding bed, and a spring confined between said hub and lever arm.

652,332. RETORT FOR TREATING ORES. Benjamin Sadtler, Denver, Colo., assignor to Albert G. Clark, Cincinnati, Ohio. A retort composed of an admixture of fire clay serving as a binding material, and of infusible basic material in excess at the inner surface, the whole fritted together.

652,367. TOOL FOR SLITTING AND CUTTING OFF WELL CASINGS. Thomas Law, San Jacinto, Cal. A device comprising a head having jaws pivoted therein, a tube connected with the head, a wedge slidably mounted in the head, a sleeve carried by the wedge, and a jar rod connected with the sleeve.

652,385. SECONDARY BATTERY. Clyde J. Coleman, Chicago, Ill., assignor to Thomas J. Ryan, New York, N. Y. The combination of a series of perforated conducting casings or cells for containing the active material, and a connecting strip for said cells, the upper end of the cells being formed with vertical slits to receive the connecting strip, which upper ends are flattened upon the strip.

652,395. EXCAVATOR. Isaac P. Lambing, Denver, Colo. The combination with journaled rotary scroll-shaped buckets the inner portions of which form cylindrical segments, of a vertical cylinder, a piston reciprocable therein, and connections between the cylinder and the cylindrical portions of the buckets whereby the movements of the piston are transmitted to rotate the buckets.

652,402. HOISTING MACHINE. Walter Paschall, Adamsford, Pa. The combination of a hoisting drum in fixed bearings, power device for operating it, a friction brake, a power-actuated device for applying the brake by moving it under normal conditions, and an operator's support or platform whereby the weight of the operator standing on said platform is required to remove the brake and hold it out of action.

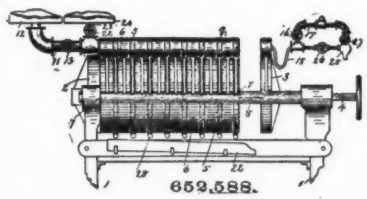
652,461. BOSH-PLATE. Edward Kerr and William R. Brown, Pittsburg, Pa. Furnace wall having a series of bosh-plates set therein, said bosh-plates having their vertical axes sufficiently greater than the axes of their width so that no bridge arch shall be required in the furnace wall over the bosh-plate opening to support the superincumbent masonry, and means for introducing a cooling medium into said plates.

652,468. HORSESHOE-NAIL FORGING MACHINE. Charles W. Woodford, Port Henry, N. Y. The combination of a side die and an anvil die carried by a pivoted die-block and means for swinging the said die-block at predetermined times and for maintaining the said die-block stationary during the delivery of several blows of a nail-forging apparatus.

652,471. STORAGE AND SHIPPING DEVICE FOR LIQUID AIR. Andrew J. Chase, Boston, Mass. A storage and shipping device for liquid air, comprising a heat-resistant jacketed liquid-air container, a chamber located outside of said liquid-air container in proximity thereto and enclosed by the jacketng, and means for admitting fluid to such chamber and controlling the quantity supplied.

652,514. ALLOY. Emma C. Guild, Berlin, Germany. An alloy consisting of copper, zinc, tin, bismuth, lead, silicic acid and phosphorus.

652,588. FILTER PRESS. Matthew P. Boag, Golden Gate, Cal., assignor to himself and Charles V. Manner, San Francisco, Cal., trustees. The combination of rings and channeled plates alternating with each other, filtering material, as cloth, interposed between each ring and the surfaces of the adjacent plates, means for clamping said rings,



652,588.

plates and material together, individual pipes for conducting the filtered liquid from said plates, a conduit discharging by individual passages into the upper portion of the chambers within the rings, a reservoir for the unfiltered liquid connected with said conduit, a source of gaseous pressure likewise connected with said conduit, and valves for independently controlling said connections.

652,540. MINE-DOOR OPENER. William A. Gold, Frederick P. Eckert, Adam Pfeiffer and Albert H. Lewis, Port Washington, Ohio. The combination of the doors, means for closing them, a pivoted bell crank, flexibly connected at one end to a door, a rock shaft, a pulley fast-mounted upon said rock shaft, to the groove of which the other end of the bell crank is flexibly connected, two other pulleys fast upon said rock shaft, flexible connections secured to said pulleys, and to mechanism for actuating said flexible connections, rotating the pulleys and oscillating the bell crank.

652,603. FEED DEVICE FOR GAS PRODUCERS. Victor E. Edwards, Worcester, Mass., assignor to the Morgan Construction Company, same place. The combination of the body, a rotary chute, an outlet from said chute extending substantially from the center to the edge of the body, and means for feeding the material through said outlet.

652,611. COMBINED DIAPHRAGM AND ELECTRODE. James Hargreaves, Farnworth-in-Widnes, England, assignor to the General Electrolytic Parent Company, Limited, same place. The combination with a wire-cloth cathode of a superposed layer of paper, clay, or other temporarily retentive material, a coating of Portland cement and a covering composed of asbestos.

652,631. CARBURETER. John Pender, Brunswick, Victoria. The combination of a spraying chamber, an air inlet communicating therewith, a mixture outlet, a tube having sets of ports opening to the spraying chamber, to the air inlet, and to the mixture outlet.

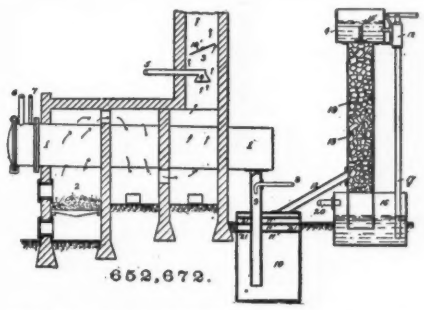
652,637. PRESS FOR FORMING TUBES. Henry N. Potter, Gottingen, Germany, assignor to George Westinghouse, Pittsburg, Pa. A die composed of a central core or button, and a disk, having an opening surrounding the said cores so as to leave an intermediate space, a nut holding the said disk in place, and two or more screws pressing against the bottom of the said disk.

652,640. ELECTRIC FURNACE. Henry N. Potter, Gottingen, Germany, assignor to George Westinghouse, Pittsburg, Pa. An electric furnace consisting of a tube composed of a mixture of dry electrolytes, an electric circuit including the said tube, a closely surrounding jacket composed of one of the constituents of the tube, a heating conductor surrounding the jacket, and a support therefor.

652,658. PROCESS OF MAKING TUBING. Frederick F. Bischoff, Chicago, Ill. The process consists in first bending a strip of sheet metal to the form of a channel bar having a flat web, round corners and flat diverging flanges, and subsequently bending said web and flanges to a curve of common radius.

652,664. FILTER PRESS. Edmund C. Burr, San Francisco, and John C. H. Stut, Oakland, Cal., assignors of one-third to John W. Atkinson, Santa Maria, Cal. A filter-press plate having the lower portion of its faces formed or provided with a cross area or band of reticulated groovework.

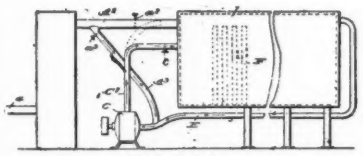
652,672. PROCESS OF EXTRACTING SULPHUR FROM ORES. John S. Fleming and Henry Froehling, Richmond, Va. Process consists of



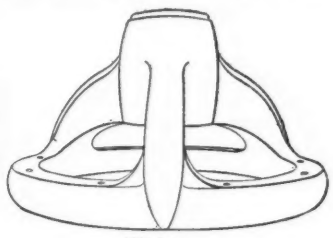
652,672.

subjecting the ore to distillation in an atmosphere consisting of gas or gases which are not supporters of combustion, but with the admixture of a controlled quantity of oxygen.

652,687, 652,688, 652,689 and 652,690. APPARATUS FOR MAKING SULPHURIC ACID. Nathaniel P. Pratt, Atlanta, Ga. In a sulphuric-acid plant, the combination with a Glover tower and a sulphuric-acid-producing



652,689.



32,884.

system, of a mechanical blower, a flue connecting the system, toward its rear, with the blower, whereby partially spent gases may be withdrawn and returned toward the front portion of the system, and a flue for conveying fresh gases from the Glover tower to the blower, whereby a mixture of the fresh and of the partially spent gases is effected, and a flue for conveying the mixed gases, under pressure, from the blower into the system.

Design Patent No. 32,884. ORE-CRUSHER FRAME. Philetus W. Gates, Chicago, Ill., assignor to the Gates Iron Works, same place. The design for an ore-crusher frame, as shown.

GREAT BRITAIN.

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy.

Week Ending June 2d, 1900.

10,137 of 1899. AMMONIUM METALS. J. W. Kynaston, Liverpool. A method of manufacturing ammonium nitrate from sodium nitrate and sulphate of ammonia.

10,241 of 1899. INCANDESCENT LAMPS. Austrian Gas Light Company, Vienna, Austria. Improvements in the use of osmium as a filament in incandescent electric lamps, chiefly with a view of avoiding the absorption of gases by osmium before being placed in the vacuum.

13,469 of 1899. SAFETY LAMP. A. Howat, Manchester. A miner's safety lamp capable of burning paraffin.

13,528 of 1899. METALLIC PIT PROP. G. Spencer and F. Chambers, Derby. A metallic pit prop made from H-girders with the flanges bent round so as to form nearly a circular cross-section.

20,583 of 1899. X-RAYS FOR TESTING ORE. M. Costello, Lowell, Mass., U. S. A. The application of X-rays for determining the presence of gold in ores and gravels.

PERSONAL.

Mr. Charles North, formerly of Leadville but now operating in Mexico, is paying Leadville a visit.

Mr. John Guth, manager of the Banker Mine at Leadville, Colo., has returned from a two months' stay in New York City.

Mr. J. F. Newton, one of the two lessees of the A. Y. & Minnie Mine at Leadville, was married this week and has gone to Paris on his wedding tour.

Mr. A. S. Harvey has resigned as secretary of the Home Mining Company at Leadville, Colo., and Mr. E. T. Wigginton has been elected to the place.

Mr. Benedict Crowell, of the firm of Crowell & Peck, mining engineers, of Cleveland, O., is now in Virginia examining mining property near Richmond.

Governor Tanner and Mr. Peters, of Illinois, who are largely interested in Leadville mining, have been visiting in that camp for a short time, the guests of Mr. T. S. Wood.

Mr. W. S. Richardson and Mr. C. T. Aldrich, capitalists of Boston, interested in the Boston Gold Copper Smelting Company at Leadville, are looking over their interests in that camp.

Prof. J. D. Young has extended his laboratory in the Monadnock Building, Chicago, having taken in four large rooms. The school of assaying in connection with the laboratory is a large one.

Mr. Charles E. Van Barneveld, professor of mining in the Minnesota School of Mines, has returned to Minneapolis from a trip through the State of Jalisco, Mexico, in the interests of Chicago and St. Paul capitalists.

Mr. R. E. Palmer has resigned his position on the Le Roi Mine, Rossland, and has left that place for the Rio Tinto Mines in Spain, where he has been appointed an underground superintendent under Mr. W. A. Carlyle.

Mr. H. N. Nicholson, consulting mining engineer of Denver, Colo., has just returned from a professional trip to the Organ Mining District, New Mexico, in the interests of Chicago capitalists. He will leave in a few days for Arizona.

OBITUARY.

F. F. Harrington, manager of the Iron Mask Mine in Colorado, died recently at Pueblo. He was stricken with insanity in May last, from which he died in a private hospital.

Lawrence A. Brown, owner of the New Departure Mine in the Blue Wing district, Montana, died near Barrett's Station, 10 miles from Dillon, Mont., on June 29th. He served several terms in the State legislature as Senator, and was one of the early city attorneys of Butte.

SOCIETIES AND TECHNICAL SCHOOLS.

Association of American Steel Manufacturers.—The officers of this association for 1900 are: President, G. M. McCauley, Harrisburg, Pa.; vice-president, A. F. Huston, Coatesville, Pa.; secretary and treasurer, Albert Ladd Colby, South Bethlehem, Pa. The association is composed of the following members: American Iron and Steel Manufacturing Company, Lebanon, Pa.; American Steel Casting Company, Chester, Pa.; American Steel Hoop Company, Pittsburg, Pa.; American Steel and Wire Company, Cleveland, O.; Bethlehem Steel Company, South Bethlehem, Pa.; Birmingham Rolling Mill Company, Birmingham, Ala.; Cambria Steeel Company, Johnstown, Pa.; Carbon Steel Company, Pittsburg, Pa.; The Carnegie Steel Company, Limited, Pittsburg, Pa.; Central Iron and Steeel Company, Harrisburg, Pa.; The Colorado Fuel and Iron Company, Pueblo, Colo.; Empire Steel and Iron Company, New York City; Glasgow Iron Company, Pottstown, Pa.; Illinois Steel Company, Chicago, Ill.; Jones & Laughlins, Limited, Pittsburg, Pa.; Lorain Steel Company, Lorain, O.; Lukens Iron and Steel Company, Coatesville, Pa.; Maryland Steel Company, Sparrows Point, Md.; National Steel Company, Chicago, Ill.; National Tube Company, Pittsburg, Pa.; The Otis Steel Company, Limited, Cleveland, O.; Park Steel Company, Pittsburg, Pa.; Passaic Rolling Mill Company, Paterson, N. J.; Pennsylvania Steel Company, Steelton, Pa.; Reading Iron Company, Reading, Pa.; Republic Iron and Steel Company, Chicago, Ill.; Shelby Steel Tube Company, Cleveland, O.; Shoenberger Steel Company, Pittsburg, Pa.; The Standard Steel Works, Burnham, Pa.; Tennessee Coal, Iron and Railroad Company, Birmingham, Ala.; Tidewater Steel Company, Philadelphia, Pa.; Worth Bros. Company, Coatesville, Pa.

INDUSTRIAL NOTES.

The addition to the works of the Pennsylvania Engineering Company, at New Castle, Pa., is about completed, and the structure is now enclosed.

The North American Metalline Company, of Long Island City, N. Y., manufacturers of the metalined or oilless bearings for machinery, has just increased its power by installing a new Worthington water tube boiler of 109 H. P. capacity.

The new plant of the Duquesne Steel Foundry Company, which is being erected at Coraopolis, Pa., on the Pittsburg & Lake Railroad, is being put up as rapidly as possible. Nearly all the steel frame construction is completed, the roof and sidings now being under way.

The Semet-Solvay Company has let a contract to build 120 additional by-product coke ovens at Ensley, Ala., to cost approximately $500,000. As soon as the new ovens are completed the company will put in a plant for refining the bi-products.

The 1,200 ironworkers employed by Spang, Chalfant & Company, Pittsburg, have been notified of a reduction in wages ranging from 15 to 20%, to take effect at once. A voluntary increase of a similar percentage was made by the firm about six weeks ago, and it is thought the cut will be accepted without protest.

Messrs. Charles H. Besly & Company, Chicago, report that their general business has been very good. They are making large shipments of their celebrated "Helmet" oil and "Bonanza" cups, and note especial demands from California and vicinity. "Helmet" bronze sheet and wire, Badger and Gardner die stocks, taps of all descriptions, and Gardner grinders are being largely called for by foreign buyers, recent shipments having been made to Japan, England, South America, Germany and Mexico. They are receiving numerous requests for prices, catalogues, etc., for new shop equipment, which form a good indication for future orders.

The Pacific Coast Borax Company announces that the works at Alameda, Cal., have been temporarily closed because of the excessive freight rates between Alameda and Death Valley, from which point the supply of crude borax is obtained. Death Valley lies about 500 miles to the eastward of Alameda, where the refineries are located, and this compels the company to pay practically double rates; a rate on the shipment of the crude article to Alameda and another rate to send it back to the market, so the company now sends the crude borax direct to Galveston, Tex., from whence it is shipped to the immense works of the company at Constable Hook, N. J. The refineries at the latter place will be kept running as usual.

The Bethlehem Steel Company, South Bethlehem, Pa., has in hand the entire equipment of steel shafts and engine forgings which are to go into a new steamer building by the Harlan & Hollingsworth Company at Wilmington for the Mallory Line. These forgings are to be made of a high grade of open-hearth steel, forged under hydraulic pressure and carefully annealed, in accordance with the standard practice of these works. These works are also making all the shafts and forgings for an 11,000-ton steamer which is to be built by the Union Iron Works of San Francisco for the American-Hawaiian Steamship Company. In this instance the owners specified that all the parts mentioned should be made at the Bethlehem plant.

TRADE CATALOGUES.

The Ferracute Machine Company, of Bridgeton, N. J., has issued its catalogue No. 13 of presses and dies. The catalogue, which contains 40 pages, the company calls a temporary one, and the cuts therein do not show all the latest improvements. The presses shown, however, are for a great variety of work. The catalogue sets forth their merits and gives a full price list of the various patterns.

As a change from the usual style of trade catalogue in which the virtues of some device or engine are extolled in glowing terms, the Fort Wayne Electric Works, of Fort Wayne, Ind., send out a 74-page pamphlet which contains a complete list, as near as possible, of plants which are now operating Fort Wayne apparatus. The list embraces arc plants, incandescent plants, direct-current bi-polar plants, direct-current multipolar plants, bi-polar motors, and single-phase alternating-current motors.

The S. Obermayer Company, of Chicago and Cincinnati, manufacturer of and dealer in all kinds of foundry supplies, has issued the 30th annual number of its large general catalogue. The company's Cincinnati plant is stated to be the largest foundry facing factory in the world and the catalogue, which contains 232 pages, is evidence of the size of the company's business. One of the devices which the company controls is the Whiting cupola furnace for which several advantages are claimed. Cranes, derricks, ladles, moulding machines, air-hoists and blowers are among the other articles manufactured or carried in stock. The catalogue will be found of interest by all foundrymen.

Weber gas and gasoline engines and hoists are described in a 72-page illustrated catalogue, No. 16, published by the Weber Gas and Gasoline Company, of Kansas City, Mo. The company states that its engines and hoists can be operated on natural gas, town gas, gasoline, kerosene, distillate or producer gas; that all parts are interchangeable and are made of the best material and that the company strives for high quality and durability rather than mere cheapness. The engines shown range from 4 up to 100 H. P., and are designed for stamp mills, pumping plants, electric plants, air-compressors, etc. The company also builds portable engines of from 6 to 30 H. P. and states that it makes a specialty of irrigation outfits. The company's hoists are in use in many mines in the West and Southwest and at points as far away as Dunedin, New Zealand. They are, it is said, made to run on the same fuels and are built with the same care as the company's hoists and from 6 to 100 H. P. The Weber Company makes hoists and engines in sections for transportation on burros, enabling mining machinery to be set up in almost inaccessible places.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods of any kind, and shall be pleased to furnish them information, catalogues, etc.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, and have no pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

The Department of the Interior in Washington has given notice of an important change in the standing regulations governing the issue of patents for mineral lands. The regulations in question are those based on Section 2,322 of the revised statutes of the United States. This section reads as follows:

"Section 2,322. The locators of all mining locations heretofore made, or which shall hereafter be made, on any mineral vein, lode or ledge situated on the public domain, their heirs and assigns, where no adverse claims exist on the 10th day of May, 1872, so long as they comply with the laws of the United States and with State, Territorial and local regulations not in conflict with the laws of the United States governing their possessory title, shall have the exclusive right of possession and enjoyment of all the surface included within the lines of their locations, and of all veins, lodes and ledges throughout their entire depth, the top or apex of which lies inside of such surface lines extended downward vertically, although such veins, lodes or ledges may so far depart from a perpendicular in their course downward as to extend outside the vertical side lines of such surface locations. But their right of possession to such outside parts of such veins or ledges shall be confined to such portions thereof as lie between vertical planes drawn downward as above described, through the end lines of their locations, so continued in their own direction that such planes will intersect such exterior parts of such veins or ledges. And nothing in this section shall authorize the locator or possessor of such a vein or lode which extends in its downward course beyond the vertical lines of his claim to enter upon the surface of a claim owned or possessed by another."

The old regulations, established some time ago by order of the Commissioner of the General Land Office, approved by the Secretary of the Interior, were as follows:

"1. The rights granted to locators under Section 2,322, Revised Statutes, are restricted to such locations on veins, lodes or ledges as may be situated on the public domain. In applications for lode claims where the survey conflicts with the survey or location lines of a prior valid lode claim, and the ground within the conflicting surveys is excluded, the applicant not only has no right to the excluded ground, but he has no right to that portion of any vein or lode the top or apex of which lies within such excluded ground, unless his location was prior to May 10th, 1872. His right to the lode claimed terminates where the lode, on its onward course or strike, intersects the exterior boundary of such excluded ground and passes within it. The end line of his survey should not, therefore, be established beyond such intersection.

"2. Where, however, the lode claim for which survey is being made was located prior to the conflicting claim, and such conflict is to be excluded, in order to include all ground not so excluded, the end line of the survey may be established within the conflicting lode claim, but the line must be run so as not to extend any farther

into such conflicting claim than may be necessary to make such end line parallel to the other end line and at the same time embrace the ground so held and claimed. The useless practice in such cases of extending both the side lines of a survey into the conflicting claim, and establishing an end line wholly within it beyond a point necessary under the rule just stated, will be discontinued."

By the new order the second paragraph of the regulations, as given above, is rescinded altogether, while the first paragraph is modified to read as follows:

"The rights granted to locators under Section 2,322, Revised Statutes, are restricted to such location on veins, lodes or ledges as may be situated on the public domain. In applications for patent on lode claims where the survey conflicts with the survey or location lines of another lode claim and the ground in such conflict is excluded, the applicant not only has no right to the excluded ground, but he has no right to that portion of any vein or lode the top or apex of which lies within such excluded ground, unless his location was prior to May 10th, 1872. His right to the lode claimed terminates where the lode, in its onward course or strike, intersects the exterior boundary of such excluded ground and passes within it."

These changes are made to conform to the meaning of the statute, as interpreted by decisions of the Supreme Court.

ALASKA.

It is variously estimated that between 10,000 and 15,000 people are at Nome. The beach in many places has been dug up so heavily that the sea has washed out the streaks of ruby sand on a number of claims at Nome.

Private letters from goldseekers at Nome intimate that the mining excitement here is a "steamer boom," and warn their friends to remain at home.

In the new beach diggings at Topkuk, 55 miles south of Nome City, the gray sand is gold-bearing, while the ruby sand is practically barren. The stratum of ruby sand at Topkuk contains only from 4 to 5c. to the pan, while the layers of gray sand have yielded from $10 to $12 a pan, it is said. Up to June 1st it is claimed the beach at Topkuk yielded between $200,000 and $300,000. Bluff City is the richest spot in this section.

Nome District.

A Washington dispatch of July 12th says: "The Cape Nome District has been placed under martial law by General Randall, small-pox has been communicated to the shore from infected ships and thousands of fortune seekers are without means of support. The meager information received by the authorities here indicate that conditions at Cape Nome are little short of desperate, and that they are growing steadily worse, as each steamer which arrives unloads still more fortune seekers in the gold fields, where every available claim has been staked out. The news that General Randall had taken charge and declared martial law was contained in this dispatch to Adjutant-General Corbin, dated at Nome City, June 26th: 'At request of Chamber of Commerce have assumed control of affairs in town of Nome until the arrival of Judge and the establishment of municipal government, under recent act of Congress. Estimated this date, 16,000 people in the town, and no effective civil organization for protection of life and property.'

"It is regarded here as inevitable that where so many rough and adventurous men are gathered together there should be a large lawless element, which could only be effectively dealt with, in the absence of a competent civil government, by a vigilance committee or by military authority. General Randall has two companies of the Seventh Infantry at Nome City, and the authorities have no doubt that he will be able to control any situation that may arise. To add to the difficulties of the situation caused by the overcrowding of the Cape Nome region, there is an epidemic of small-pox. The dispatches were received to-day from Lieutenant J. H. Jarvis, of the revenue cutter service. The first, dated June 29th, reported 10 cases and 1 death, and the second, dated July 2, reported 20 cases. Lieutenant Jarvis has taken complete charge of quarantine matters and established a quarantine station on Egg Island. He asks the department to send medical help and vaccine points at once. The medical officers of the cutters 'Bear' and 'Manning' will render all the assistance in their power, and Assistant Surgeon Earle, of the Marine Hospital Service, now at San Francisco, will be ordered to Cape Nome by the first steamer. On his arrival he will take charge of the quarantine station."

A Washington dispatch says that a report has been received at the Treasury Department from Capt. Roberts, commanding the revenue cutter "Manning," dated Dutch Harbor, Unalaska, June 23d, 1900, showing a situation at Cape Nome which the officials fear may result in great suffering during the coming winter among the crowds that are now flocking to the new gold fields. Capt. Roberts says:

"The steamer 'Luella' of San Francisco, F. Miller master, came in from Nome with a clean bill of health and confirms the report that smallpox cases were found on board the steamers Ohio and Santa Anna, which have been sent to Egg Island, off St. Michael, for detention in quarantine. Dr. Call, recently of our service, has been appointed quarantine officer by the authorities. Capt. Miller informs me that there are no cases of smallpox ashore, but that nearly everyone expects an epidemic of typhoid fever.

"There are, he believes, 10,000 persons on the beach with no prospect of securing a paying claim or of obtaining employment outside of mechanics, such as carpenters, builders, etc. It appears impossible for the vast throng that has been and is being thrown into Nome by the numerous transportation companies, which use every means possible to induce travel to the Cape Nome fields, to find mines or work. Many of these people have but little above their passage money and outfits and depend upon finding gold to keep them going after landing.

"It is the opinion of those from the mining district of Nome and vicinity, from whom I have sought information, that a large number of persons will be stranded before the end of the season with no means of getting out of the country without assistance from some source. The revenue cutters, crowded to their utmost, could take but a small fraction of the number, and the problem of how they will survive the rigors of an arctic winter is one that requires serious attention."

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Defender.—The shaft at this mine, near West Point, across the North Fork of the Mokelumne River, is down almost 300 ft. in high grade ore, in fact the ore taken from the shaft in sinking has paid the expenses. At the bottom the ledge is 10 ft. in width. A 4-stamp mill is on the property, but arrangements are being made to erect a 10-stamp mill.

Fremont-Grover.—At these mines, located about 2 miles north from Amador City, arrangements are being made to pump out and retimber the old Grover shaft and to continue the new shaft at the Fremont down below the 300-ft. level. Among other improvements contemplated is the erection of a 60-stamp mill, midway between the two shafts. C. E. Purrington is superintendent.

Calaveras County.

(From Our Special Correspondent.)

Berdina.—The mill near Mokelumne Hill is running day and night on good rock, crushing about 4 tons per stamp. As the tunnel is extended the ore is found to improve in value. The property is operated by J. K. Carpenter, who represents an Eastern company.

Gold Hill.—The new machinery at this mine is being placed in position and the shaft will be continued to depth.

St. Lawrence.—Development work still continues at this mine, 2 miles south from Angels. In the crosscuts the ore is improving. A new boiler has been installed in the place of the old one. A good force of men are employed.

El Dorado County.

(From Our Special Correspondent.)

Alpine.—This group of mines near Garden Valley is being developed by a Los Angeles company, which holds the bond. A steam hoist has been erected and sinking is being pushed day and night.

Expansion.—This mine, located near the Metcalf Place, 8 miles west from Placerville, has been bonded by a San Francisco syndicate, which has placed J. H. L. Tuck in charge of the development work. A mill site is being graded, and a 20-H. P. engine will be installed. The ore is low grade, but can be mined and milled at a low cost.

Omo.—A force of men has been put at work by J. H. Bradley, cleaning out and developing the lower levels. The mill and other machinery is to be overhauled and put in first-class order. Water is obtained from the Empire Ditch Company. The mill will start up in a day or two. The property is located about 8 miles east from Fairplay.

Rosebud.—This property near Fairplay is being rapidly developed by 8 men under the superintendency of M. L. Smith. The shaft is down 200 ft. on a 20-in. ledge of high grade ore.

Kern County.

Randsburg Coal Field.—Work is progressing actively and a good quality of coal has been uncovered. The bed lies in the Black Mountain country, 15 miles west of Randsburg. At a depth of 50 ft. the coal was soft and rather poor, but on working further down a better quality was found.

Nevada County.

(From Our Special Correspondent.)

Conlon.—The machinery from the Daisy Hill Mine has been re-installed at this mine on Osborn Hill, 2½ miles southeast from Grass Valley, and is now in operation. The new 5-stamp mill is completed and is now crushing.

Placer County.

(From Our Special Correspondent.)

Glen Consolidated.—At a point 700 ft. in on the main tunnel, at this gravel mine near Bald Mountain, a shaft has been sunk 52 ft. in the center of the channel, and a new hoist has been put in operation. Ten men are employed.

Pleasant & American Bar.—On these river claims, on the Middle Fork of the American River, below Michigan Bluff, which comprise about 8,000 ft. of American River bed, Kavanaugh, McAulay & Company are working a large force of men.

Shasta County.

(From Our Special Correspondent.)

Balakala.—In the Raymond or lower tunnel, run as a crosscut, a large body of high grade copper ore is said to have been cut, and diamond drills have been put at work to thoroughly prospect the property. The mines, located 7 miles northwest from Copley, are under bond to the Iron Mountain Investment Company.

Black Spider.—This mine near Keswick is temporarily closed down to enable the management to put in new machinery. The shaft is down 140 ft. and a drift run on the 100-ft. northwest 140 ft. carries a 15-in. vein for 70 ft. from the face. The mine will start up again in about 60 days.

Minnesota Consolidated.—This property, 1 mile below the Iron Mountain Railway Bridge, between Keswick and Iron Mountain, has been bonded to Day & Caldwell of San Francisco. The deal will include the quartz mill, buildings, ditches and water-rights of Spring Creek and Slick Creek, and timber lands.

McCloud River Electric Power Company.—It is reported that this company will install a second plant on Mill Creek, near Shingletown, at a point where a pressure of over 1,000 ft. fall at the power-house can be obtained. The surveys are now being made for the pipe line, and the general manager, A. F. Johns, is to select the site for the power-house at once. Both plants, which will furnish about 7,000 H. P., will be in operation by the first of the year.

National.—This mine on Rich Gulch is closed down and the men have been laid off for the present. The pump will be taken out and also about 500 ft. of tracks in the 200-ft. lead. Poland & Company, who are cyaniding the tailings, will continue their work.

Pioneer Gold, Silver and Copper Mining Company.—This company has been organized with a capital stock of $200,000, for the purpose of developing the Recorder and Town Creek claims at Copper City. H. C. McClure, O. E. Nash, T. Greene, J. R. Hall and A. Bell are the directors. The Recorder claim has been worked for the past 25 years and the Town Creek for 4 years. There is a large body of low grade ore.

Siskiyou County.

(From Our Special Correspondent.)

Commodore.—John Chase, who holds the lease on this property, located at the head of Barkhouse Creek, is on the ground with a force of men to commence operations on a large scale. As soon as enough ore is on the dump the mill will be started up.

Scott Mountain Mining Company.—This company has been incorporated with a capital stock of $500,000, $70,000 subscribed. The directors are E. P. Primm, J. W. Conant, T. B. Smith, J. J. Chambers and E. S. Watson. The property to be operated by the company is located on Scott Mountain, near the lines of Trinity and Shasta Counties. The ledge is well defined and carries high grade ore.

Trinity County.

(From Our Special Correspondent.)

Deadwood District.—Quarts mining observed from the standpoint of a prospector is in its infancy in this locality, and there is no general movement toward greater development of our latent mineral resources. The few paying mines existing are only prospects or surface diggings; all found at one time when quartz mining was in the cradle and float rock scattered over the hillsides. Only when the deeper regions shall be exploited can we with certainty look toward better standing.

The Brown Bear Company of Deadwood is driving a tunnel for the ledge, to be about 4,300 ft. in length. It is now in 3,600 ft., which will tap the ledge some 270 ft. lower than the present workings. The formation is slate, with intrusive dykes of porphyritic granite.

The Unity Mining Company has 10 stamps dropping at the Bully Choop Mine on $18 ore and a ledge over 5 ft. wide. The same company is prospecting the old Henry Clay Mine near Deadwood, an old heavy producer.

The late heavy rains have kept up the water in rivers and creeks and placer miners are doing much work; the wing-damming in the large streams will be suspended until late in the fall. Dredging will ultimately do all the deep river mining. The dredger at Poker Bar

is working uninterruptedly and doing so well that at least three more such propositions are being spoken of.

As a whole, the mining industry is keeping this part of the world alive, but we must find more quartz miners; the ore is here and capital should be the principal factor. The result will be great increase of mineral output. Most failures must be accredited to the mismanagement or incapability of the operators. On the other hand, I know of old properties in this vicinity which are virtually being run into debt by their managers for the sake of getting hold of them ultimately.

Yellow Rose of Texas.—The new mill has been completed and is running day and night on high grade ore. The plant consists of a 3½-ft. Huntington mill, a Springer concentrator and two engines.

Tuolumne County.

(From Our Special Correspondent.)

Continental.—The tunnel on this mine at Columbia is now in 140 ft. and is being driven along the lead for the "West Sonnet" vein.

Mount Jefferson.—The ground is being graded preparatory to adding ten additional stamps to the milling plant at this mine, at Groveland.

Over.—The pumping plant at this mine on Bald Mountain has been completed and is taking care of the water.

COLORADO.

Chaffee County.

(From Our Special Correspondent.)

Crestone District.—The new Independent shaft is down 70 ft. Two shifts are working and the shaft will be sunk 500 ft. The Santa Isabel has been temporarily closed down.

Monarch District.—The Eclipse is being developed by a force of 12 men with fair results. The Columbus was started recently with a small force after being idle since last summer. Six men are employed on the Madonna lease on pay ore. The Mason employs a small force and has just shipped some good ore. Another shipment will be made July 10th.

Clear Creek County.

(From Our Special Correspondent.)

Alice.—F. R. Carpenter, who built the matte smelter in Deadwood and made it possible to treat low-grade ores there, recently selling out his mining and smelting interests, has taken a lease and bond on the Alice group of claims at the head of Fall River, near Yankee Hill. The group embraces 970 acres of patented ground, with ample ditch rights. Mr. Carpenter makes this statement: "The ore body consists of a vast amount of altered granite of unknown length and depth, but about 400 ft. in thickness. It is traced for over 1,000 ft., and taking this and with a depth of 1,000 ft., it would yield 1,000 tons a day for 100 years. I have all of the data to prove its truth. The property has been worked for many years and is well known to the miners of Clear Creek County, who regard it as the largest body of low-grade ore in the State. There are numerous pits upon the ledge from which drifts and cross-cuts have been driven, disclosing a vertical ore body 350 by 210 ft., with all breasts in all directions yet in ore. From this immense ore body were taken 56 samples, each sample representing 10 ft. of ore. These gave an average value of $4.96 in gold and silver. To this should be added a percentage of copper not yet fully determined. I have obtained a lease and bond upon the property and propose to build a 240-stamp mill for the treatment of the ore. A mill of this size will treat 960 tons of ore per day. Of the $4.96 value about $1.50 will be recovered by amalgamation and 60% of the remaining values by concentration. It is also proposed to roast and smelt these concentrates to a matte on the ground. The average value of the concentrates so far is 3.7% dry assay, enough to fully concentrate the gold and silver values and to make a fairly high-grade copper matte.

Custer County.

Geyser Mining and Milling Company.—An assignment has been made to the general manager of the company, W. J. Elmendorf. The liabilities amount to $65,000, of which $25,000 is owed in Boston, Mass., $25,000 for fuel and labor and the remainder for taxes. Since the organization there have been 26 assessments, 25 of 10c. each, and one of 15c. President Norton is now at the mine and it is believed the company will be reorganized.

Gilpin County.

(From Our Special Correspondent.)

New Incorporations.—The Jenny Creek Mining and Milling Company, capital stock $500,000. A. C. Lovelace, J. W. Hart, C. E. Peterson and E. L. Alexander as incorporators.

Omnibus Gold Mining Company.—A certificate of full paid-up stock has been filed in the county clerk's office. Capital stock is $1,250,000. Directors are W. A. Mareau, H. and A. M. Enfiagian, and Albert J. Norton.

Lake County—Leadville.

(From Our Special Correspondent.)

The tonnage for the past week was very light owing to the three days' celebration here. At this celebration the feature was the drilling contests. Andregg & Chamberlain, of Victor, broke the world's record in double-handed drilling in Gunnison granite, making 39 17/32 in. in 15 minutes, while Pat Conley, of Victor, broke the world's record in single-handed drilling in Gunnison granite, making 21¼ in. in 15 minutes. Prizes amounting to $1,500 were given away to the contestants.

Semi-Annual Review.—The first six months of the new year are over, and the Leadville district has made a most satisfactory showing in the mining world. The production will doubtless eclipse any previous six months in the history of the district, and that is saying a great deal. The output at the present time is in the neighborhod of 2,500 tons per day, a falling off from last month, a fact which is probably greatly due to the fall in the price of lead. But even this tonnage is ahead of the product of several years past. As predicted at the beginning of 1900, there were many important projects on foot while the work under way looked most encouraging. These projects have in most instances been inaugurated, while the work then being carried on has resulted in a material increase in the tonnage of the camp, and the opening up of wonderful ore bodies. The ore bodies that have been opened up, especially in the down-town section, have proven the theories that existed to be correct, and have added a stimulus to new work that has brought to the front this important down-town district. The new shafts that have been started in this down-town locality are making marked progress, and a field of territory is being systematically operated that will still greatly enhance the value of the district before the close of 1900. Among the new propositions that can be referred to as working and in their primary (sinking) stage are the new A. V. shaft, Valentine shaft, California Gulch shaft, Toledo Avenue shaft, new P. O. S. shaft, Neusitz shaft, Maple Street shaft, and Seeley shaft, while in addition lessees have started up old workings that have long been idle, and which are now receiving much attention in the way of development. Other parts of the district also show a big step forward during the first half of the year. The Resurrection people are pushing down a new shaft, the Board of Trade is putting down a new shaft, the Dolly B. is sinking deeper, the Nisi Prius is putting down a new shaft, the Rose-Emmet is putting down a new shaft, the Poverty Flat people are pushing new work, the Yak people, while pushing their tunnel through rich territory, have added materially to the production of the camp by the connections now being made with their workings and which permit of operation through their tunnel of properties that have long lain idle. The Iron Silver people are opening up their Stevens territory, the A. M. W. combination has its work of exploration under way in good shape, and is one of the greatest prospecting and developing enterprises in the camp to-day, the Home Company continues to open up its big territory and pay 50c. dividends monthly, the Rock Hill and Revenue companies are pushing down their shafts and conducting development on a large scale, the Comstock and the Chippewa companies are pushing down new shafts, the Sugar Loaf, Lake Park and other outside sections have important new work under way, the old properties and producers, like the Ibex, Resurrection, Ballard, Penn, Greenback, Mab, Midas, Marian and a host of others, continue to open up their old ore bodies and with prospecting work to find new ores, so that there are no played-out mines among this list, and the first six months can truly be said to have been even beyond expectations of the most sanguine.

A. V.—A fine plant of machinery has been ordered for this new proposition, at the foot of Harrison avenue, and contracts were let this week for the erection of all the surface building.

Banker Mining Company.—The annual meeting was held this week and the following directors were elected: John Guth, Geo. Blackburn, G. P. Clements, Peter Scherrer, Geo. Schuler, M. Rittenhouse and W. E. Guth. This is a New York company and the directors are New York people. The shaft on the Banker is 1,100 ft. deep. The most important work at present is the running of a drift at 800 ft., which is following a fine streak of ore. The capital stock of the company is to be increased and more ground is to be purchased.

Blaine Electric Mining and Power Company.—This new concern, capitalized at 1,200,000 shares, has floated $50,000 worth of bonds through the American Exploration Company, of Philadelphia. It owns 6 claims in Twin Lakes section, and President Applegate says that in one of the properties is a vein 6 ft. wide with a pay streak nearly a foot in thickness, that assays 3 ozs. gold, 7 to 8% copper and 800 ozs. silver.

Equator.—After many years of idleness this proposition resumed work this week. The money for the enterprise is being furnished by Denver people and extensive work is to be done.

Gold Mines Company, Limited.—Articles of incorporation were filed this week, capital stock $500,000, par value $1 a share. Incorporators are: F. P. Ernest, G. J. Clendenning, A. H. Weber, S. B. Weber and W. W. Porter.

Starr Placer.—I cannot learn it officially, but have it from very excellent authority that within the next 10 days this important piece of territory will be sold from the hands of the administrator to a syndicate headed by the Sheedy-Kountz people, of Denver, and that the purchase price will be $250,000. The placer embraces 35 acres of fine territory into which extend the shoots of the Home and Bohn mining companies. Attempts have been made at various times to buy this ground, but they were unsuccessful. It could have been bought two years ago for $100,000, but the price was then considered too high. Since the success of the Home Company it has more than doubled in value.

Valentine Mining Company.—These people have sold nearly half a million shares of their stock. They have resumed sinking on No. 1 shaft, wihch was the old Lucky Webber shaft, and will push down rapidly from a depth of 260 ft. In addition a new shaft is to be started by the company near the Union smelter, this shaft being the furthest west of any shaft ever started in the camp.

San Juan County.

(From Our Special Correspondent.)

Good Hope.—Jordan et al. have secured a lease on this Bear Creek property and have already opened up a large body of high-grade tellurium ore.

Grand Mogul.—This property, together with the E Pluribus, has started up with a force of 10 men under the management of Theodore Dick. Shipments are made to Durango smelters.

Hamlet.—S. Dresbeck et al. have started work on this property under lease and bond.

Hercules Consolidated Mining Company.—Two powerful Leffel wheels have been received for this company's mill and will be installed at once.

Idaho Group.—O. C. Hanson has placed a force of miners on this group and will do considerable work this summer. Tunnel No. 3 will be extended to intersect the Idaho vein.

Kendrick-Gelder Smelting Company.—Excavating for several new buildings and grading for the large flume is completed. At the company's mine, the Henrietta, Nos. 2 and 3 levels are being connected by a 150-ft. shaft. The vein is 2½ ft. wide and 15 miners are on development work.

Sunnyside No. 2.—New machinery ordered some time ago is arriving for the Sunnyside Mill No. 2, which will be running by July 1st.

Sylvanite.—Shipments have commenced from this property and will continue regularly. Returns from a carload shipped June 15th give 19.2 oz. gold and 34 oz. silver.

Tiger Tramway.—This tram is completed from the Tiger Mine to the railroad and shipments are made over it.

Toltec Group.—J. H. Martin, part owner in these claims, arrived from Denver recently and awarded contracts for developing the properties.

Washington.—A 10-H. P. engine and boiler have been taken up to this mine near Sunnyside. The shaft is down 100 ft. and the influx of water has greatly increased, necessitating the installation of pumping machinery in the near future.

San Miguel County.

(From Our Special Correspondent.)

Alta.—This mine, at the head of Gold King Basin, near Telluride, gives excellent promise and will be worked more extensively than ever before. Development systematically prosecuted for 2 years has put the mine in shape for a continuous output. Two tunnels have been run on the vein, the lower one 1,200 ft. and the other almost as far. There is a perpendicular depth of 1,500 ft. between the breast of the lower and the surface, giving plenty of breasts. The tunnels were recently connected by an upraise of 225 ft., giving splendid ventilation. The vein carries from 4 to 6 ft. of ore, a large streak of which is high grade enough to permit shipment to smelters crude; the rest is milling ore. The ore runs in silver, lead, gold and copper, but the two former predominate, the high grade running from 40 to 60% lead, which makes it desirable for smelting. The returns from the milling ore by the Gold King mill have been satisfactory and the owners may build a concentrating mill. N. T. Mansfield, of Telluride, one of the owners, is manager.

Summit County.

Excelsior Mines Company.—The new mill at Frisco is in operation. The mines are developed by 3 tunnels, tunnel No. 1 being in 700 ft., No. 2 400 ft. and No. 3 250 ft. Tunnels Nos. 2 and 3 are connected with the mill by a surface gravity tramway, over which the ore is taken to the grizzly on the upper floor of the mill. The fine ore which passes through the bars of the grizzly

goes to the large ore bin, while the coarse ore is fed to a 10 by 15 crusher, made by the Denver Engineering Company. From the crusher the ore goes to the main ore bin, and from there is automatically fed to a pair of 14 by 27 crushing-rolls. The resulting pulp is elevated and passes through 4 sizing screens. The "return" or over-size material passes through another set of 14 by 27 rolls and is recrushed. The sized material is automatically fed to the Cammett concentrating tables. The middlings from these tables are put through another set of rolls and are crushed fine. This fine pulp is then elevated by means of a sand-pump and is fed to 3 Cammett tables, where the remaining ore in the pulp is extracted. The capacity of the mill is 60 tons of crude ore per day, though it can handle 15 or 20 tons more. The electricity with which the entire plant is lighted and operated is produced from a water-wheel placed 2,300 ft. from the mill, the water being taken from the north branch of the Ten-Mile Creek. The mill was planned by the Denver Engineering Works and built by D. M. Nichols.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

On account of the Fourth of July this week most of the mines discontinued work for one, two, and some for three days, thus giving their employees a chance to celebrate the national holiday.

Elkton Consolidated Gold Mining Company.—This property is reported to be in excellent shape. The shaft has reached the depth of 800 ft. and a station is being cut at this depth for a large pump. It is understood that when this is done drifts will be run to the vein on the 7th and 8th levels. The 6th level has been run on the vein revealing an almost continuous ore body for that length. Foundations are being laid for a new plant of machinery which is soon to be put in. The Raven and the Tornado properties have recently been consolidated with this property.

Good Will Tunnel.—This tunnel is being driven into Gold Hill at a rapid rate. During June it was advanced 410 ft. At the beginning of July this tunnel had reached a length of 2,500 ft. It is being pushed at present by English capital, Mr. William Weston of Colorado Springs being in charge of the proposition. The tunnel is 8 by 9 ft. in section.

Mary McKinney Mining Company.—The annual meeting of the stockholders of this company was held recently and the following directors elected for the ensuing year: F. F. Castello, C. N. Williams, P. J. Ryan, N. S. Nichols and A. C. Van Cott. The reports of the officers showed the mine to be in splendid shape both physically and financially. The heavy flow of water which has been bothering of late has been gotten under control. This property is one of the good propositions of the camp. At the directors' meeting Mr. Castello was chosen president, Mr. Nichols vice-president and Mr. Van Cott secretary and treasurer. At this meeting the quarterly dividend of $30,000 was also declared. When this is paid it will make a total of $150,000 that has been distributed among the stockholders. This company's ground adjoins that of the Anaconda company.

National Mining Town and Land Company.—It is understood that the control of this company has changed hands, it now being in the hands of W. A. Otis & Company of Colorado Springs. The new directors of the company are W. A. Otis, W. P. Sargeant, H. L. West, Raymond Sargeant and P. B. Stewart. The property of the company is situated a short distance south of the town of Cripple Creek on a spur of Gold Hill.

Portland Gold Mining Company.—This company has just declared its first quarterly dividend, having changed from monthly to quarterly. The rate of the dividend is the same as formerly, 2% per month or 6% quarterly, making $180,000 to be distributed among its stockholders. When this is paid the total distribution of this company will amount to $3,127,080, which is a little more than the entire capitalization of the company. This company shipped about 6,000 tons of ore during the month of June, which was indeed a good showing. It is reported on good authority that a large vein of good ore has just been opened up on one of the lower levels of the mine. Mr. James F. Burns of Colorado Springs is president and general manager of the company.

Union Gold Mining Company.—The annual meeting of the stockholders of this company was held this week and the following directors elected for the ensuing year: J. A. Sill, C. W. Kurie, W. A. Baldwin, W. A. Ramsay, C. H. Morse and Harold Starkweather. Mr. Sill was later chosen president, Mr. Ramsay vice-president, Mr. Baldwin secretary and treasurer and Mr. Morse assistant secretary and treasurer. It was generally thought that the election of directors for the coming year would develop the fact that most of the stock of the company was owned by Mr. John Dern of Salt Lake, but such does not seem to have been the fact.

IDAHO.

Owyhee County.

De Lamar Mining Company.—The monthly report of Manager D. B. Huntley states that in May 4,123 tons of ore were treated and 4,435 tons of tailings. In addition 231½ tons of rebellious ore were put through the old amalgamating pans. The ore charged in the vats assayed $10.49 gold and $1.10 silver, the tailings $1.98 gold and 49c. silver. The rebellious ore averaged $15.05 gold, $11.08 silver; the tailings, $6.33 gold and $4.03 silver. The 4,435 tons of tailings averaged $4.70 gold, $1.27 silver before leaching and 95c. gold, 59c. silver after leaching. The total estimated income for the month is $65,027. The operating expenses of the tailings plant were $6,545, and the total expenses $39,305, leaving an estimated profit of $25,721.

INDIANA.

A dispatch from Indianapolis says that in the case of the Manufacturers' Gas and Oil Company against the Indiana Natural Gas and Oil Company, the Supreme Court has construed recent acts of the Legislature respecting the pumping of gas from wells. The Court first declares that it is a well-settled principle that the State has a right to protect navigable rivers from injury, misuse, or destruction, and in the case of natural gas these are reasons why the owners of the land should exercise the right to protect it from destruction.

In the case before the court it was charged that the defendant was using pumping machinery in its wells and was thereby increasing the flow of gas to the detriment of other owners of wells, because drawing to a greater extent upon the reservoir in which the gas is deposited. The court holds that such acts are destructive of the gas made and therefore illegal.

MINNESOTA.

(From Our Special Correspondent.)

In view of the reports that the output of the Lake Superior district would fall to 16,000,0000 tons this year the following estimates are given by the best posted men in the trade, for the Mesabi Range: Carnegie mines, 1,250,000 tons; Rockefeller mines, including Adams, Hibbing group, Ohio and Duluth mines, 2,000,000 tons; Biwabik, 800,000 tons; Republic group, 300,000 tons; Kimberley mines, 150,000 tons; total, 4,500,000 tons. All these are shippers over the Rockefeller road to docks at Duluth. Mahoning mine, 1,000,000 tons; American Mining Company's group, 300,000 tons; Corrigan, McKinney & Co.'s mines, 450,000 tons; Penobscot Mine, 150,000 tons; total, 1,900,000 tons; all these being shippers over the Eastern Minnesota to docks at Superior, Wis. Fayal, Genoa, Elba and Auburn mines of Minnesota Iron Company, 2,250,000 tons; Colonial, Roberts, etc., 200,000 tons; total, 2,450,000 tons. All these will ship over the Duluth & Iron Range road to docks at Two Harbors. The combined total of both Minnesota ranges, under these estimates is 10,650,000 gross tons. The output from the Vermillion Range for the season is probably to be about as follows: Chandler Iron Company, 650,000 tons; Oliver Iron Mining Company, from Pioneer, Savoy, Zenith and Sibley mines, 800,000 tons; Minnesota Iron Company, 450,000 tons. Total 1,900,000 tons. All this ore—and more—is sold and under vessel contract for delivery, and there are no outward indications that all of it will not be delivered. It is scarcely possible that the old ranges, whose ore is more in demand than that of Mesabi, will ship only a little over 5,000,000 tons. Many of the old range mines are known to have contracts that will exceed this amount. Cleveland Cliffs, for instance, 12,500,000 tons; Chopin, 10,000,000; Carnegie, 1,900,000. There have been shipped to this date about half of the 16,000,000 tons that some ore men consider the probable total movement, and there are almost five full months yet.

In June, Duluth, Two Harbors and Superior shipped a gross total of 1,616,419 tons, making 3,220,592 tons for the year up to July 1st. This is within 200,000 tons of the total to August 1st last year, and 450,000 tons more than to July 1st, 1898. The entire Lake country to July 1st, 1900, is 1,600,000 tons ahead of the same date last year. In June this year the Duluth, Missabe & Northern road shipped a daily average, not including Sundays, of 27,300 tons.

The ships of the Bessemer Steamship Company are still laid up at various ports of the lake, chiefly at Duluth, and there does not seem to be any crying need of their services. The wild rate on ore is still 25c. under the contract rate and any increase of offerings of tonnage would send it down rapidly. Should lower lake receiving docks become clogged with ore, as is feared, the rate would probably go off.

Iron—Mesabi Range.

(From Our Special Correspondent.)

The Republic Iron and Steel Company's group was idle last week because of bad ventilation, etc. The Victoria shaft was closed for the season, enough having been mined there. The associated Union 4-compartment shaft is being sunk very fast. The company has found a large body of ore in leases on section 3, T. 58, R. 18, which is now believed to be an extension of the Mountain Iron Mine. It will drill at once on some leases in section 11, T. 58, R. 19, that also belong to the State.

Contracts have been filed giving the Duluth, Missabe & Northern road the exclusive haul of ore from the Spruce and Cloquet mines at Eveleth, the Union at Virginia and the 160 acres of Kimberley lands in sections 3 and 9, close to Virginia. The contract covers about 7,000,000 tons at Spruce, 4,500,000 in Union, about the same, or more, in Cloquet and an unknown quantity in the Kimberley lands. The consideration is a loan of $300,000 to the Union at 5% for 3 years, well secured, and would seem to be an important deal for the road. The rate is 80c. a ton, or any less rate that may hereafter become the open charge on ore to Lake Superior ports.

Lake Superior Consolidated.—This company's Ohio Mine is not shipping now, the steam shovel having been taken for work on the road. Shipments will be resumed shortly. A steam shovel is starting in stripping for this mine, on the Gulbranson contract, which has 120,000 yards yet to remove. An immense ore area is being uncovered by this work.

Oliver.—This company's Oliver Mine is now shipping from one shovel, another being used in the stripping area. Some drillwork lately carried on here showed a very great depth of ore in the old mine.

Stevenson.—This mine has commenced shipments this week, a track to the main line of the Eastern Minnesota road having been completed. The mine will be a very large one and will probably ship nearly 100,000 tons this year. It is under a low royalty and a favorable minimum and is operated by Corrigan, McKinney & Company of Cleveland. It is on land owned by the Eastern Minnesota interests, bought from Wright & Davis, Saginaw lumbermen. It is located some 5 miles west from Hibbing, and is therefore the most westerly mine operated on the range.

Union Ore Company.—The large shaft adjoining the Franklin ground is well down and will be hoisting some ore very soon. Tracks will be built into this property by the Duluth, Missabe & Northern very soon. The Duluth & Iron Range road is now completing a track just east of this tract, to reach the new Fay Mine, whose name is to be changed.

Iron—Vermillion Range.

(From Our Special Correspondent.)

A mining lease has been taken by F. Hicks, trustee, from H. Nordstrom, of Tower, by which for $1,000 paid down, the former gets a lease on 140 acres in sections 1 and 2, T. 61, R. 15, at a royalty of 15c. a ton and an output of 35,000 tons. The Minnesota Iron Company is probable lessee.

Pioneer Mine.—By an explosion in the new shaft here several men were killed or injured. This work had previously proceeded with remarkable freedom from accident. The shaft is going down very rapidly. The mine is shipping ore at the rate of about 450,000 tons a season.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—The conditions in the ore market are similar to those existing last year at this time, when zinc ore was steadily declining and ore buyers were restricting their purchases to actual necessities. On account of the large number of mills shut down, the production is fully 2,500 tons per week below the normal capacity and even with this small output a surplus is slowly accumulating which is now estimated to be about 4,000 tons. The metal men appear to have an understanding among themselves to restrict the output of spelter and several of the big concerns are out of the market alternate weeks. The Empire Zinc Company shut down indefinitely a few weeks ago, and last week the Cherokee-Lanyon Zinc Company bought no ore, whereas the Matthiessen-Hegeler Zinc Company, which had been out of the market for some time is buying again and the Lanyon Zinc Company is an unusually heavy purchaser.

Following is the turn-in by camps of the Joplin district for the week ending July 7th, 1900:

	Zinc, lbs.	Lead, lbs.	Value.
Joplin	2,224,550	393,000	$34,734
Galena-Empire	1,534,000	94,840	20,546
Carterville	846,780	179,410	14,288
Webb City	534,730	32,220	6,623
Oronogo	213,060	11,160	2,722
Belleville	241,650	5,960	3,037
Central City	198,360	5,400	2,504
Duenweg	427,810	13,500	4,626
Carthage	181,210	22,650	2,333
Aurora	945,000	28,770	9,977
South Jackson	117,750	9,260	1,625
Cave Springs	74,730	10,170	1,131
Ash Grove	92,300	.....	1,107
Springfield	89,240	.....	1,071
Carl Junction	69,010	.....	828
Granby-Newton county	118,240	15,060	1,400
District total	7,908,420	821,400	$108,552
Total 26 weeks	256,830,800	29,894,150	$4,472,675

Zinc prices generally remained unchanged last

week and $25 per ton was the top with the exception of a choice lot of ore from the mines of the Independence Mining Company east of Joplin, which brought $26 per ton at the bin. Lead was $1 per 1,000 lbs. lower and sold all the week at $23 per 1,000 lbs. During the corresponding week last year top grade zinc ore sold at $43 per ton and lead at $26 per 1,000 lbs. The output was less by 265,770 lbs. of zinc and 409,550 lbs. of lead, but the value was greater by $47,279. For the first 27 weeks of last year the lead sales were less than this year by 5,578,010 lbs., but the zinc sales were greater by 18,758,740 lbs. and the value was greater by $1,460,471. As compared with the preceding week, the zinc sales were greater by 62,730 lbs., but the lead sales were less by 169,580 lbs., and the value was less by $5,730.

C. S. & M. A. Miller, representing the Binghamton Mining Company, of Binghamton, N. Y., have purchased the McCarty 20-acre tract on Turkey Creek which is under lease to Bailey & Stickney and which is one of the best producing pieces of property in the Joplin district. They also purchased the lease on which a fine new mill is about completed. The price paid was $20,000. The company will purchase other desirable property and will increase the holdings in the district as fast as they can find property to suit them.

The Sheldon Mine on the Kohinoor lease of the Continental Zinc Company's ground west of Joplin has been sold by the owners, Frank P. Anderson, of Joplin, and S. A. Wight, of Nevada, Mo., to Boston parties for $30,000. The Sheldon is one of the greatest producers of the Continental Company's ground and is a comparatively new property with a large body of ore developed. Some important improvements will be made by the new owners at once.

MONTANA.

Broadwater County.

(From Our Special Correspondent.)

The outlook for this Winston District is much brighter than for several years past. Shipments of ore are being made from the Cannon property at the head of Kimber Gulch, and the mines of Iron Age Gulch are producing about the usual amount of ore.

Champion.—This property is to resume operations with a very good showing for a producer of valuable ores. It has been worked in the past and is equipped with a good plant.

East Pacific.—This is the banner mine of the camp, and since resumption of work after the shut-down on account of strike of the men last winter, is showing up well. The shipments to the East Helena Smelter amount to about 300 tons monthly at present, with the prospect of greatly increasing this output as new ground is opened up in driving tunnel No. 4. The face of No. 4 is now about 1,000 ft. from the surface. From tunnel No. 3 a shipment of 20 tons was made on July 3d, which assays over $1,000 to the ton.

Irish Syndicate.—The owner of this property announces that he will put on a diamond drill in the near future and prospect the lead to a depth of 500 ft.

The Granite Belt.—West of Winston, about 4 miles, is a camp that has attracted little attention from mining men, although a good quality of ore has been shopped from there to the smelters. It lies at the base of the mountains, in the Beaver Creek Basin, and water is encountered at the depth of 20 to 30 ft. The leads are large, showing a big outcrop, but are mostly too low grade to bear smelter treatment. It is now proposed to erect a concentrator to treat these ores, which are sulphides carrying 2 to 3% copper and $12 to $15 in gold. If this proposition is carried out the granite belt will add greatly to the output of this camp.

Carbon County.

Preparations are being made to work the placer mines of Clark's Fork on a more extensive plan than ever before. For a number of years development work has been done on these placers for 15 miles along the river every season with common sluice boxes, and from $5,000 to $15,000 a season has been taken out by various parties, who work only a few weeks each year. This spring the river bed and banks have had a thorough prospecting by experienced placer miners, among them being J. M. Garrison of Virginia City, J. M. Siegfried, who lately returned from the Klondike, and Louis P. Sichler of Clark's Fork. These gentlemen are negotiating with a company to put in a dredge outfit. They have control of about 10 miles of the river, all of which prospects well.

Jefferson County.

(From Our Special Correspondent.)

New Elkhorn Mining Company.—The following circular to the stockholders from the London office is dated June 29th: "The whole of the company's property, plant and all assets in the State of Montana have been disposed of by private treaty on terms which the directors consider satisfactory. The directors have arranged with Mr. W. S. Kelley, the general manager, who has so ably conducted the company's business in Montana, to proceed to Leadville, Colo., and exhaustively examine the conditions prevailing at the company's properties in that camp, with a view to advising the board whether in his opinion the company is justified in expending further sums in development, and if so what amount is necessary to thoroughly demonstrate the value of the properties. Pending receipt of Mr. Kelley's report, the board has considered it desirable to postpone convening the annual meeting of shareholders."

Our local correspondent reports that the property, including the Elkhorn Mine, mill and water rights, was sold for $9,000 to the Longmaids, who are well known and successful mine operators.

Carbonate Chief.—A contract for sinking a new shaft is being advertised for by John Stienburner, of Helena. This property is the east extension of the Fleming property in Warm Springs district.

Lewis & Clarke County.

Reports are current that rich placer ground has been opened near Helena. Christopher Miller and his son, who operate a claim in Confederate Gulch, have made a shipment of very rich ore. The narrow seams from which this ore is taken are claimed to be continous for several hundred feet.

Meagher County.

(From Our Special Correspondent.)

Copperopolis.—The properties which Reynolds and McDowell, of Butte, have had under bond for the past year and a half have been deeded to those gentlemen. Mr. McDowell arrived this week from Butte to cash the bonds. The amount is said to be $125,000 for the group. A recent shipment of 10 cars to Butte sampled 40% copper.

Copper Duke.—The shaft on this Copperopolis property is down 75 ft.; it is said to have 3 ft. of copper glance in the bottom.

NEW YORK.

Herkimer County.

Preparations are being made to open an iron mine near Salisbury Center. Some years ago desultory work was done on these iron ore deposits.

OKLAHOMA.

Canadian County.

Apache Mining Company.—This company has been organized with the principal business at El Reno. The capital stock is $25,000. The company is organized to mine for gold and other minerals in the Wichita Mountains. The stockholders are Frank M. Gault of Oklahoma City, W. F. Evans of Topeka, Kan., W. T. Beeks, A. C. Springs, H. K. Ricker of El Reno.

PENNSYLVANIA.

Anthracite Coal.

Columbia.—A cave-in occurred at this old colliery at Duryea, but no serious damage was done.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Black Hills Porcelain Clay and Marble Company.—This company is putting one more men at the marble ledge and work has commenced on the kaolin vein. The lithographic stone will be prospected as soon as 2 diamond drills arrive. B. R. Noble, president of the company, will arrive from Yale, Mich., next week.

Copper Butte Company.—This company, which was nearly ready to commence development work on a property northwest of Custer when M. H. Day died, has been reorganized. The new officers are: President, W. H. Buffum, New York City; vice-president, Gerald Pierce, Chicago; secretary, W. A. Nelson, Custer; treasurer, Wm. D. Lowry, Minneapolis. The company will sink a deep shaft on the property. The ore lead is about 4 ft. thick.

Lawrence County.

(From Our Special Correspondent.)

Clover Leaf Mining Company.—The annual election of officers has been held in Deadwood. The officers are: President, Pierre Wietaux, Wietaux, Mont.; vice-president, Frank W. Smith, Wietaux; second vice-president and treasurer, F. W. Russell, Deadwood; secretary, R. N. Ogden, Deadwood; director, G. G. Ware, Deadwood. The company has purchased the old Uncle Sam mine, on Elk Creek, 12 miles south of this city. A drift is now being run toward the vein. The old stamp mill has been repaired ready for work.

Hildebrand Mill.—This plant, owned by Cook & Parker of Deadwood, is running steadily on ore from the Onuga Mine at Terraville. The ore is stamped and then put through the cyanide tanks. An extraction of 95% is said to be obtained.

Omaha Mining Company.—This company is selling stock to operate a placer deposit and a bank of Homestake concentrates, above Whitewood Falls, 7 miles below Deadwood. S. A. Flower, of Deadwood, is president.

Portland Company.—A contract has been made by this company for furnishing 2,000 tons of ore to the American Milling and Smelting Company of Kansas City. The ore is to be delivered within 60 days. The mine is also shipping ore to the Deadwood smelter and cyanide plant.

Reddy Mine.—The first shipment of ore from this mine in the North Lead District has been made to the Deadwood smelter. The mine is owned by B. E. Salmon & Son, of Lead, and it is now leased to William Chubbs of that place.

Ruby Gulch.—Samuel Moll, a miner in Ruby Gulch, east of this city, has found a nugget of gold valued at $27.50. Two other nuggets have been found in the same gulch, valued at about $32 each. Placer mining is being carried on with good results in this district.

Titanic Mining Company.—This company has purchased the old machinery used by the Detroit & Deadwood Company at the hoisting plant in Two Bit. The Titantic Company will commence soon to sink a shaft on the Carbonate property. The directors have authorized the sale of 100,000 additional shares of stock.

Two Johns.—C. A. Hallam, of Chicago, one of the principal stockholders in this mine, located at the head of Squaw Creek, has been out to the ground and the mine is being thoroughly sampled.

University Gold Mining and Milling Company.—This company has been organized with a capitalization of 1,250,000 shares, par value $1 per share, to develop 70 acres 4 miles west of Deadwood. About $5,000 in development work has been done. F. W. Medberg, of Vermillion, S. D.; O. U. Pryce and David Ellis, of Deadwood, are the incorporators.

Pennington County.

(From Our Special Correspondent.)

Big Hit Mining Company.—The concentrating plant at the Bismarck Mine, west of Keystone, has been fitted with stamps and is nearly ready for a trial run. An air drill has been set up in the mine and ore is being broken.

Cochran Mill.—James Cochran, the owner of the Huntington mill located 3 miles west of Rochford, is running 30 tons of ore daily. The old Grady stamp mill is also running in the Hornblende Camp.

Stand-by Mine.—The mine and mill will soon be in operation. A tunnel is being run through the mountain 1,400 ft., to tap the ore vein on the other side of the mountain.

UTAH.

(From Our Special Correspondent.)

Site for New Smelter.—As yet nothing definite is given out where the new smeltery of the American Smelting and Refining Company will be located, but the impression appears to be more and more firmly founded that it will be in the neighborhod of the Germania plant near Murray. The people of Sandy, it is said, at the outstart made the best offers, but the Murrayites bestirred themselves and will capture the prize; such, at least, is the semi-official report now given out.

Iron County.

(From Our Special Correspondent.)

Ophir.—A gasoline hoist and a 3-drill compressor are being added to the equipment. The shaft is to be pushed to 600 ft. with as little loss of time as possible.

Juab County.

(From Our Special Correspondent.)

Eureka Hill.—A cheery sound is the familiar roar of the machinery of the mill—45 stamps being in commission, which will shortly be increased to 60.

Mammoth.—A Bleichert wire tram, to connect the mine and mill, is determined upon. Length of tram will be 4,800 ft. and difference in elevation 350 ft. Each bucket will hold 800 lbs. and the capacity of the tram will be 250 tons daily. Cost of transporting ore will be 6c. per ton, as against 30c., by the New East Tintic Railway. The tram complete will cost $15,000 and will be in commission in September.

South Swansea.—The new shaft house and its equipment is one of the best in the district. By July 6th the new main shaft will reach the 550-level and from that point connection will be made to the old workings.

Washington County.

(From Our Special Correspondent.)

St. George.—June will prove one of the best months since the present company took hold of the Dixie Mine. The smelter will turn out 3 car-loads of copper pigs, besides the high-grade ore shipped from the mine. The St. George is paying dividends with quite even regularity.

VIRGINIA.

Buckingham County.

Philadelphia parties who have been operating in the county for some time, near the Cumberland County line, have found talc. They are now at work opening up the vein.

FOREIGN MINING NEWS.

ASIA.

Straits Settlements.

Pahang Corporation.—For May this company reports that the Jeram Lumpong Mill, of 40 stamps and the Jeram Batong Mill of 20 stamps were in operation, the former for 29 days and the latter 30 days. The total rock crushed was 3,350 tons, an average of 1.9 tons per stamp per day of 24 hours. The product was 48 tons of black tin, showing an average yield of 1.43% for the month.

AUSTRALASIA.

New South Wales.

Broken Hill Proprietary Company.—This company reports for the four weeks ending June 20th that the output of the refining works was 922 oz. fine gold, 426,701 oz. fine silver, 2,839 tons lead, 46 tons hard (antimonial) lead and copper matte estimated to contain 5,927 oz. silver. This makes the total silver 432,628 oz. fine.

CANADA.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Ore Shipments.—The total output of ore from Rossland mines for the six months and five days ending July 5th amounted to 75,000 tons.

Centre Star.—The new hoisting machinery has had its trial run. Everything worked satisfactorily.

Ontario—Sudbury District.

(From Our Special Correspondent.)

A New Process.—For 10 years different parties have claimed to have discovered improved processess for making nickel-copper ores into matte. but none of these has hitherto proved to work as successfully on a practical scale as the old process. John D. McDonald, a local mining man, claims to have worked out a plan for combining roasting and smelting in one process by which the raw ore is calcined and made into matte in 8 to 12 hours and with less than half the fuel now required. He is erecting a 50-ton plant for this process at one of the Worthington mines.

Lake Superior Power Company.—This company is getting out more or less ore to ship to Sault Ste. Marie as soon as the new railway is built to the company's nickel mine in the township of Creighton.

Yukon Territory.

A recent report from United States Consul J. C. McCook at Dawson says that a conservative estimate as to the output of gold this season places the figure at $18,000,000, distributed as follows: Eldorado, $3,746,200; French Gulch, $48,000; Ore Grande Gulch, $21,000; Bonanza, above dis, $1,231,900; below dis, $1,984,590; Cheechaco Hill, $712,300; Adams Hill, $195,400; American Gulch, $225,000; Fox Gulch and Oro Fino, $702,000; King Solomon's Hill, $749,100; Dominion, above lower, $277,500; below lower, $480,460; Sulphur, above, $862,220; Gold Run, $1,037,050; Hunker Benches, $180,000; Gold Bottom, $39,200; all other creeks, $500,000; Gay Gulch, $106,800; French Hill, $24,900; Eldorado Hillsides, $32,700; Bonanza Hill, $52,600; Gold Hill, $1,002,000; Adams Creek, $92,200; Magnet Gulch, $477,000; Monte Cristo, $173,500; Dominion, above, $158,000; below, $1,220,950; Hillsides, $192,250; Tribs, $22,850; Sulphur, below, 594,500; Hunker, above, $423,100; below, $788,000; Quartz Creek, $200,000. These mines employed 5,280 men, at an average wage of $1 per hour.

SOUTH AMERICA.

Brazil.

Ouro Preto Mining Company.—For the month of May this company reports 5,384 tons of ore crushed, the product being 2,054 oz. gold, an average return of 0.38 oz. to the ton.

COAL TRADE REVIEW.

New York. July 13.

Anthracite.

There is some reason for calling the market dull according to dealers, though the movement of coal is good and the quantity taken by consumers is fully up to, or rather above, that usual at this season. This is especially the case with the steam sizes. Otherwise the trade condition does not differ from the average in July.

A statement which seems pretty well supported, though officers of the companies refuse to affirm or deny its correctness, puts the production of anthracite in June at 4,608,000 tons, and for the first half of the year at 22,474,573 tons; which is 1,773,495 tons more than last year. The market seems to have absorbed this excess fairly well, for we do not hear of excessive stocks anywhere, and the talk of restricting July production has not resulted in any definite action. Some of the companies, however, are shortening time in the collieries.

The movement of coal to the West continues good and Chicago reports show that coal is being bought more freely, under the expectation that the higher prices will be enforced before long.

Coal in the East continues to be sold at about the same rates as last month, and the increase of 25c. is still considered only as a notice of what will be asked for the fall trade.

The Central Railroad of New Jersey is having trouble with its trainmen, and there is some talk of a strike. Matters do not seem yet to have gone beyond the point where an amicable settlement is possible.

Bituminous.

The demand for coal in the Atlantic seaboard bituminous trade shows signs of improvement. There is more disposition to buy on the part of consumers, this tendency being most marked where the better grades of coal are concerned. As a result of this increased demand for the standard coals there is a better market for the poorer grades.

The George's Creek strike is still on, with few signs of an immediate settlement. Many of the more skillful miners have left the region and the companies show no signs of changing their attitude toward those who remain.

Transportation from mines to tidewater is very poor. There are frequent complaints that the railroads are not getting coal forward fast enough, and it is no unusual thing for vessels to wait 2 or even 3 weeks at the shipping ports before getting cargoes.

There is little change in the coastwise vessel market when vessels are in fair supply with demand steady. Current ocean freights from Philadelphia we quote as follows: Providence, New Bedford and the Sound, 65@70c.; Boston, Salem and Portsmouth, 75@80c.; Wareham, 85@90c.; Lynn, 90c.; Newburyport, 90@95c.; Portsmouth and Bath, 80c.; Dover, $1.15@1.25 and towages; Gardner, 80@85c. and towages.

Prices for the better grades are practically unchanged. The poorer grades are selling down to $2.25 f. o. b. New York Harbor ports.

Notes of the Week.

The Pennsylvania Railroad Company reports the coal tonnage originating on its line east of Pittsburg and Erie during the six months ending June 30th as follows, in tons of 2,000 lbs.:

	1899.	1900.
Anthracite coal	1,924,581	2,040,822
Bituminous coal	7,955,241	9,725,865
Coke	3,649,766	4,380,535
Totals	13,529,588	16,147,222

The increase in anthracite was 116,241 tons, or 6.1%; in bituminous coal, 1,770,624 tons, or 22.3%; in coke 730,769 tons, or 20.0%; making the total increase 2,617,634 tons, or 19.3%, over last year.

Birmingham, Ala. July 9.

(From Our Special Correspondent.)

Work is now resuming in the mine and the trade will be exceedingly heavy right through the year. The general contract, the local contracts and other agreements are being signed up and this week the operations throughout the State in the various collieries resumed. The trouble was finally closed by agreements to continue the old scale.

During the past week Mr. Elmer Wood, of the firm of D. B. Wood & Sons, of New Orleans, who deal in coal extensively, and who have already several big orders placed in this district, was in the city and stated that there would be need for all the coal that could be handled down the Mississippi barge line this coming fall and winter.

The State Mine Inspector states that for the first half of the year the production in the coal mines in Alabama has been larger than ever before. There seems to be little doubt, provided no further disturbances occur, that the output for the year 1900 will run over 8,000,000 tons and possibly on to the 10,000,000. The new mines, which were started on during the last 4 months, are being pushed and preparations are being made to start others in the near future. The Tutweiler Coal and Iron Company will open a new mine near Blossburg.

The coke industry is on the forward move also again. The Milner Coal, Iron and Railroad Company has 70 of the 200 new coke ovens in blast, while the Sloss-Sheffield Steel and Iron Company is putting in new ovens right along also. The Semet-Solvay By-product Company, which has more than 125 ovens in operation at Ensley, saving the by-product, will erect at an early date just 125 more and will add considerable to their big plant at Ensley.

Chicago. July 10.

(From Our Special Correspondent.)

Anthracite Coal.—The buying of anthracite coal has been on a somewhat larger scale than the previous week, retailers and others having bought in sufficient quantities to last them for some weeks ahead. The advance in prices has necessarily been the main cause of the increased demand. The receipts of hard coal at Chicago for the month of June, both by lake and rail, were much smaller than last year. The circular prices of anthracite coal are now $5.25 for grate and $5.50 for egg, stove and chestnut.

Bituminous Coal.—There has been a little more activity displayed, orders having come in many cases for quantities sufficient to last for three or four weeks to come. This is probably the beginning of the long delayed buying on the part of manufacturers, railroads and others. The present enormous stock of coal in the city and the anxiety on the part of shippers to dispose of the same has made prices very reasonable and the consumers are taking advantage of the present situation. Quotations are: Brazil Block, Indiana, $2.75; Hocking Valley, $2.85; Du Quoin, $2.55; Pocahontas and New River, $3.75; Raymond, $3.25.

Coke.—There is very little demand at present, orders being few and the quantity limited to a sufficiency for immediate consumption.

Cleveland, O. July 11.

(From Our Special Correspondent.)

The reports of the commerce which passed through the canals at Sault Ste. Marie from the opening of the season of navigation to July 1st show that the shipment of bituminous coal to Lake Superior ports has amounted to 1,422,601 tons, an increase of 726,374 tons over last year. This shows how far ahead the shippers are in the movement and that they are in better shape than they have been for years at so early a date in the season. They are counting on sending more coal up this year than they did last, but the increase will not be over 500,000 tons. The entire movement up the lakes this season will therefore be in the neighborhood of 5,500,000 tons. Coal is now coming to the lake ports in fair quantities and is being moved away about as rapidly as it comes. The tonnage for Lake Michigan is abundant. As to Lake Superior, the situation is different. Shippers and vessel owners are at loggerheads over the rate, the shippers occasionally getting boats at 40c. and claiming that to be the rate, while owners are equally emphatic in the announcement that 50c. is the rate, backing up their statement with charters at that figure. It is confidently believed that the shippers will win the day and reduce the rate.

Pittsburg. July 11.

(From Our Special Correspondent.)

Coal.—The demand for coal exceeds the supply at the railroad mines, while over 10,000,000 bush. of coal are tied up in the river unable to get out owing to the low water. The rise this week did not amount to much, and but 50 flats, holding about 250,000 bush., were sent to Cincinnati. A number of the river mines were forced to suspend on account of a lack of empty coal boats and barges, but on Tuesday several towboats arrived with 284 barges and 109 coal boats. These crowded the harbor, but all are being sent up to the mines as rapidly as possible. Some of the railroad mines are not being operated to their full capacity this week on account of a scarcity of cars. The diggers at the mines of the Manor Gas Coal Company, in the Irwin District, are on a strike, it being alleged that the company failed to pay the rate agreed to last April. The men threatened to close all the mines in the Irwin field unless the trouble is adjusted this week.

Connellsville Coke.—There was an improvement in the coke trade last week, but this was merely due to the ordinary fluctuation in demand and cannot be taken as an upward tendency. Prices are firmer this week. Furnace coke is quoted at $2.50@$2.75 and foundry $2.75@$3. The production was 183,515 tons, an increase of 10,261 tons over the previous week. Of the 20,341 ovens in the region 16,483 are active and 3,858 are idle, 150 ovens having been blown out during the week. The shipments aggregated 9,666 cars, distributed as follows: To Pittsburg and river tipples, 2,912 cars; to points west of Pittsburg, 4,792 cars; to points east of Connellsville, 1,962 cars. This is an increase of 483 cars compared with last week.

Shanghai, China. May 30.

(Special Report of Wheelock & Co.)

Coal.—Japan is firmer, while Sydney Wollongong is weak, and no business doing in Welsh Cardiff. Imports during the past fortnight were 15,620 tons. We quote per ton, as follows: Welsh Cardiff, 20.50 taels; Australian Wollongong, cargo, 30 taels; and other sorts, 6.50@7 taels; Chinese Kaiping, lump, 7.50@8.50 taels; dust, 5 taels, and mixed, 5.50@6 taels; Japan, all contracted for.

Kerosene Oil.—Market very weak and dull. There seems little chance of improvement in the near future. Arrivals during the past fortnight were 235,800 cases Russian. Stocks are 601,500 cases American Devoe's; 801,800 cases Russian Batum, and 121,500 cases of Sumatra Langkat; total, 1,524,800 cases. We quote, per case, as follows: American Devoe's, 2.06 taels; Russian Batum, Anchor Chop, 1.92½ taels; Star & Crescent and Ram Chops, 1.90 taels. Horse Chop, 1.88 taels, and bulk oil, 1.82½ taels in 2 tins, and 1.44½ taels loose; Sumatra Langkat, 1.82½ taels in 2 tins, and 1.44½ taels loose.

SLATE TRADE REVIEW.

New York. July 13.

There is some contention over prices, and although Maine quarrymen claim they sell No. 1

roofing slate at $4@$7 per square, we understand from dealers that the quotations in our list are nearer the actual market value. This also applies to some of the other brands, and, in fact, Pennsylvania slate is selling at less than the schedule. Orders are small and limited, hence competition is keen, and all sorts of prices are obtained. Occasionally we hear of quarrymen who, finding collections slow and expenses pressing, selling their stocks of roofing slate to dealers at a big discount. Sometimes, say dealers, such transactions prove advantageous, but at the present, owing to the slack demand, little profit accrues after transportation and demurrage or storage fees have been paid. Then, again, slate that is exposed to the changing atmosphere depreciates and consequently must sell at a discount. Hence dealers are exercising better judgment in making such purchases than they did when there was a good export demand, which they often satisfied with this slate.

Shipments of roofing slate from quarries are much less than last year, but the school slate business looks up better, and some of the other mill stock goods show an improvement.

The shipments from Slatington and Walnutport, Pa., for the six months ending June 30th are compiled by us as follows, comparison being made with the same time last year:

	1899.	1900.	Changes.
Roofing, squares.....	101,216	84,239	D. 16,977
School slates, cases....	7,001	8,442	I. 1,441
Blackboards, crates...	6,815	5,573	D. 1,242

June, as compared with the previous month, shows a decrease in shipments of 3,618 squares roofing slate, but increases of 1,886 cases school slates and 707 crates blackboards.

We note an auction sale in New York this week of 20 shares Albion Slate Company, Northampton County, Pa., at $60 for the lot.

The list of prices per square for No. 1 slate standard brand f. o. b. at quarries in car-load lots, is given below:

Size, inches	Monson or Br'nville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
	$	$	$	$	$	$	$	$	$
14 x 14	6.50	3.50	3.00	3.25	3.10	5.10	3.15		.....
24 x 12	6.60	3.50	4.00	3.25	3.10	5.25	3.15	3.75	.....
22 x 12	6.60	3.50	3.25	3.50	3 25	5.25	3.15	3.75	.....
22 x 11	6.50	3.75	3.25	3.50	3.25	5.25	3.15	4.00	....
20 x 12	6 90	3.75	.....	3 50	3.25	5.25	3.15	3.75	.....
20 x 11	6.80	.....	....	3.75	3.50	5.25	3.15	....	.....
20 x 10	6.80	4.25	3.50	3.75	3.50	5.35	3.15	4.25	10.50
18 x 12	6.80	3.75	....	3.50	3.25	5.25	3.15	3.50	.....
18 x 11	7.00	.....	....	.....	.....	...	3.15	3.75	.....
18 x 10	7.00	4.25	3.50	3.75	3.50	5.35	3.15	4.00	10.50
18 x 9	7.00	4.50	3.50	3.75	3.50	5.35	3 15	4.25	10.50
16 x 12	6.80	3.75	.....	3.50	3.25	.....	2.95	3.50	.....
16 x 10	7.00	4.25	3.50	3.75	3.50	5 25	2.95	4.00	10.50
16 x 9	7.00	4.25	.....	3.75	3.50	5.35	2.95	4.25	10.50
16 x 8	7.00	4 50	3.50	3.75	3.50	5.35	2.95	4.25	10.50
14 x 10	6 60	3.75	3.25	3.25	3.25	5 25	2.85	3.75	10.50
14 x 9	6.50	.....	.....	.....	.....	.....	2.85	3.75	10.50
14 x 8	6.60	3.75	3.25	3.25	3.10	5.10	2.85	4.25	10.50
14 x 7	6.40	3.75	3.25	3.25	3.10	5.10	2.60	4.25	10.50
12 x 10	5.75	...	.	.....	.....	...	2.60	3.25	.....
12 x 9	5.60	..	.....	.....	.....	.....	2.60	3.25	.....
12 x 8	5.50	3.50	.....	3.00	2.80	4 85	2.60	3.50	9.00
12 x 7	5,00	3.25	.....	3.00	2.80	4.85	2.50	3.50	9.00
12 x 6	4.80	3 25	....	3 00	2.80	4.75	2.50	3.50	8.50

A square of slate is 100 sq. ft. as laid on the roof.

IRON MARKET REVIEW.

NEW YORK, July 13, 1900

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending July 14, 1899. F'ces.	Tons.	Week ending July 13, 1900. F'ces.	Tons.	From Jan., '99. Tons.	From Jan., '00. Tons.
An'racite & Coke.	204	258,500	257	276,875	7,752,063	7,967,548
Charecal.	20	6,250	22	5,950	162,540	192,027
Totals..	224	264,750	279	282,825	7,914,603	8,159,575

The general fall of prices continues and buyers are still holding off so far as time contracts are concerned, and purchasing only for immediate needs. At the same time the situation is no worse; in fact it is becoming apparent that there is a great deal of business to be done, when people are convinced that prices will go no lower.

The structural steel makers met in New York on Wednesday and decided to make no change in prices. The recent reduction has brought out a good many orders, and there seems to be no need of any further drop. The structural business is, in fact, in much better condition than any other section of the market.

Birmingham, Ala. July 9.

(From Our Special Correspondent.)

As far as new business is concerned, the pig iron market in this State is very quiet. The furnacemen are waiting for that time when the bottom shall have been reached and there will be a turn for the better. There is still much shipment of iron from this district and the orders which were accepted some months since will last two or three, possibly five or six, weeks longer than was at first expected on account of the curtailment of the production. On account of a strike among the employees of the stock houses, four furnaces at Bessemer, belonging to the Tennessee Coal, Iron and Railroad Company, were out of blast, two for three weeks and two for two weeks, while a fifth furnace had to be blown out for repairs. The same company blew out one of the Alice furnaces in the city in order to make repairs about the plant. The Tutweiler Coal and Iron Company has had its Vanderbilt furnace banked for more than a week, caused by the suspension of work for a week in the coal mines. The same cause brought about the banking of fires in one furnace belonging to the Republic Iron and Steel Company at Thomas, one at North Birmingham and one in the city belonging to the Sloss-Sheffield Steel and Iron Company, one at Trussville and one in the city belonging to Perry & Smith Brothers. The signing of the wage contract with the workers in coal mines has made the future look brighter in one sense. A strike would have been disastrous.

There are several of the minor plants in Alabama once more stirring themselves and the gloomy view that was taken a week or so ago, and in fact for several weeks past, is disappearing to some extent. The N. O. Nelson sanitary pipe plant at Bessemer, the Dimmick sewer pipe plant at North Birmingham, the Bessemer Rolling Mills, the Anniston Rolling Mills of the Southern Car and Foundry Company, the pipe plant of the Central Foundry Company at Bessemer, and a number of other iron using plants in the State, are resuming operations again with prospects of a steady run through the summer. The Birmingham and Gate City rolling mills have not shown any signs of being able to resume operations in the near future. The Republic Iron and Steel Company has not as yet signed the scale of the Amalgamated Association of Iron and Steel Workers. There is much repairing work to be done about the mills here and at Gate City and a large force of men are working on them. There is not full work being done at the steel plant at Ensley and at the steel wire and rod plant at the same place, but this condition will not be lasting.

There are a few orders being accepted in the export trade, but the purchasers on the other side expect to get the product at reduced figures. The following prices are given hereabouts: No. 1 foundry, $15.50@$16; No. 2 foundry, $15@$15.50; No. 3 foundry, $14@$14.50; No. 4 foundry, $13.75@$14.25; gray forge, $13@$13.50; No. 1 soft, $15.50@$16; No. 2 soft, $15@$15.50.

Buffalo. July 11.

(Special Report of Rogers, Brown & Co.)

The only change noted in this district is an increased inquiry, with prices, if anything, downward. It is becoming very evident the day is not so very far distant when the bottom will have been reached and passed. The prices mentioned below would doubtless be reduced somewhat under a firm offer for a fair-sized amount. We quote on the cash basis, f. o. b. cars Buffalo: No. 1 Strong Foundry Coke Iron, Lake Superior ore, $19@$19.50; No. 2, $18@$18.50; Southern Soft No. 1, $19.50@$20; No. 2, $19@$19.50; Lake Superior Charcoal, $21.50; Coke Malleable, $19.25@$19.75.

Chicago. July 10.

(From Our Special Correspondent.)

Pig Iron.—There is some tendency shown toward an improvement in the pig iron situation. There is some inquiry from foundries relative to iron for delivery two, three or four months hence, but the producers make no satisfactory answers to any of these. Architectural foundries are calling for more iron than for some time past. Orders for the week have been chiefly in carload to 100-ton lots; one sale of a thousand tons, Southern Iron, having been made. Quotations are: Lake Superior Charcoal, $22@$23; Local Coke Foundry, No. 1, $19.50@$20; No. 2, $19@$19.50; No. 3, $18@$19; Local Scotch, No. 1, $20@$20.50; Ohio Strong Softeners, No. 1, $21@$22; Southern Silvery, according to silicon, $21.35@$22.35; Southern Coke, No. 1, $20.35@$21.35; No. 2, $19.35@$20.35; No. 3, $18.35@$19.35; Southern, No. 1 Soft, $20.35@$21.35; No. 2 Soft, $19.35@$20.35; Foundry Forge, $18.35@$19.35; Malleable Bessemer, $20@$21; Standard Bessemer, $21.50@$22.

Cleveland, O. July 11.

(From Our Special Correspondent.)

Iron Ore.—The reports that have been made by the government officials at the Sault Ste. Marie canal show that since the opening of the season of navigation approximately 5,500,000 tons of iron ore have been shipped down from Lake Superior ports, an increase of about 1,500,000 tons of ore. The same condition is true with regard to Lake Michigan. The significance of the heavy movement now is the possibility of a light movement of ore in the fall, when it has always been the heaviest. Shippers are now finding conditions as to the supply of tonnage for moving wild ore much more congenial to their needs than they have been. Big ore boats which have been either taking contract ore or going into other lines of trade have at last consented to be placed for wild cargoes. The carrying rates have not been affected, being still $1 from Duluth, 90c. from Marquette and 70c. from Escanaba.

Pig Iron.—The sales of pig iron for the week have been confined to small lots at varying prices, so that no quotation could be made which would represent the market. The general tendency, however, is to a much lower price. Very little discussion of the price of iron or the amount of it to be sold during the latter half of this year is being indulged in.

Finished Materials.—As a result of the meeting of steel men in New York last week the steel market is way off. Billets have dropped from $28 to $25 a ton; bars and plates are now on the same basis, being quoted at 1.35, with some talk of 1.30c. having been accepted. The standard mills, however, hold for the higher price. Rails hold firm. At the prices which now prevail a brisk business is being done. The outlook, indeed, is better than it has been for weeks. The strongest demand seems to be for structural iron, both for buildings and for bridges. All bridge concerns are exceedingly busy and several very heavy orders have been placed this week.

Old Iron.—Prices are now seeking the level of the market, whatever that may be. The business is picking up and the dealers have better prospects now for business than they have had for months.

Philadelphia. July 12.

(From Our Special Correspondent.)

Pig Iron.—No developments to speak of have occurred as to quotations or transactions. Prices are more unsetled than last week. As to Bessemer, which consumers refuse to believe has yet reached bottom. Foundrymen are equally indisposed to take anything for granted and are not buying except where they must. Quotations are difficult to give, but No. 1X may be quoted at $19; No. 2, $18; No. 2 plain, $17; Forge, $16.

Billets.—Buyers have been ready for some days to place orders, but are awaiting certain assurances from Pittsburg as to $22 steel. Their requirements are more urgent, but until prices settle they will buy in a hand-to-mouth way.

Merchant Bars.—Some few mills in their expiring efforts to gain August business have lowered quotations to 1.30c. The mills are mostly idle and until enough business is secured to warrant resumption several will not start. The carbuilders have inquiries out for considerable iron.

Sheets.—There is an easier feeling in sheet iron circles and no further shadings are probable excepting for very large purchases. Store stocks have reached old-time assortments.

Merchant Steel.—A report has been made which shows all large merchant steel consumers throughout the East have about exhausted supplies, but they are in no particular hurry to order.

Plates.—Advices to-day direct from plate iron and steel makers is encouraging as to the probable volume of the fall trade because prices have about reached rock bottom. Tank plates are away down, but 1.40c. is given for quoting purposes.

Structural Material.—The bridge combination is reported to have considerable new work under way and on the boards.

Steel Rails.—Considerable surprise is expressed at the failure of rail makers to recognize the trend of things and reduce rails to correspond with Bessemer pig and billets. Much business is held back on this account.

Old rails.—The buyers of old rails have lowered the price they are willing to pay and several railroad companies who refused good prices in the spring are now ready to sell, but cannot.

Scrap.—Railroad and heavy steel scrap contracts are being placed by scrap dealers for their customers, but at rather low prices. There is not much call for other kinds of scrap.

Pittsburg. July 11.

(From Our Special Correspondent.)

The pushing aside of the artificial iron and steel prices and declaring the market open has had the desired effect and buying has commenced, but so far not to any great extent. It is predicted here that there will be some active buying within a week. No sales of any consequence of Bessemer pig iron have been made during the week and prices are not made public. It is asserted, however, that iron can be had as low as $17 and possibly $16.50. Several small lots of Bessemer steel billets were sold this week at less than $24. It is believed that $22 can be done before another week. When prices have reached a definite bottom figure a heavy buying movement is expected. James M. Swank, secretary of the American Iron and Steel Association, and one of the best posted men in the country on its industries, was in Pittsburg this week looking up some statistics. He predicts that the production of the mills this year will be equal to that of last year, but says it will not be greater. The sheet trade is quiet and prices rule lower than last week. All the mills of the American Sheet Steel Company, both union and non-union, are closed. This company

has secured a settlement with the Amalgamated Association of the wage scale for another year on practically its own terms. The workers made two important concessions asked by the combination. One was the original demand that the base of the scale be reduced from 3c. to 2.5c. The demand meant an advance to the workers at present prices of 10%. Last year's scale was then adopted. The workers also asked that the scale be signed for all the plants owned by the combination, but receded from this demand. No time has yet been fixed for starting the mills. Furnace F., one of the Edgar Thomson group of blast furnaces at Braddock, was blown out on Monday night and will be repaired and enlarged. Its capacity was 350 tons a day, which is to be increased to a daily capacity of 500 tons. The work will require about two months.

Pig Iron.—Several 100-ton lots of Bessemer pig iron have ben sold this week at $17, and it is believed that a much lower rate will rule when active buying begins. A meeting of furnacemen is being arranged, the object of which is to prepare a plan for curtailing the production in order to hold the market. Foundry No. 2 is being offered at $16@$16.50.

Steel.—There is nothing doing in Bessemer steel billets, only a few small sales being recorded. The nominal quotation is $24, but sales were made at $22, and it is said that $21 can be done. Steel bars are down to 1.25c. and tank plates are quoted at 1.25@1.35c. There are but two of the steel price agreements that have not been disturbed, the structural material and steel rail agreements. Some heavy orders make the prices in these lines secure. These prices can only be changed by agreement of interests that fixed the present prices.

Sheets.—All the mills of the American Sheet Steel Company are closed and the trade is quiet. Prices are lower than last week. No. 27 gauge is quoted at 2.90@2.95c. and No. 28 at 2.95@3c. Galvanized sheets are in fair demand and are quoted at 70 and 10% off, with a freight allowance of 15c.

Ferro-manganese.—The price of 80% domestic remains unchanged and is quoted at $85 in large lots and $100 for small lots.

New York. July 12.

The local iron trade is still unsettled. There is a feeling that pig iron prices are getting down to hardpan, while the prices of certain finished products, notably rails, are due to fall still more.

Pig Iron.—There seems to be a decidedly firm tone at length to the market and some of the larger concerns are much less disposed to make concessions. Demand shows some improvement. We quote for Northern irons, tidewater delivery: No. 1 X foundry, $18.50@$19; No. 2 X, $17@$17.50; No. 2 plain, $16.50@$17. For Southern irons on dock, New York: No. 1 foundry, $20.25@$20.75; No. 2, $19@$19.50; No. 3, $17.50@18.25; No. 1 soft, $20.25@$20.75; No. 2, $19@$19.50; gray forge, $16.50@$17.

Bar Iron.—The market is rather weak and prices are still unsettled. Common bars are quoted as low as 1.45c. for large lots on dock; refined bars, 1.55c.

Plates.—Business is fair, but prices have taken several drops of late. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 1.40@1.50c.; tank, 3/16-in. 1.55@1.60c.; shell, 1.65c.; flange, 1.75c.; marine, 2.10c.; universals, 1.50c.

Steel Rails and Rail Fastenings.—Some export orders are reported taken recently by the mills. No change in prices by the Eastern mills is reported yet and we continue to quote: $35 f. o. b. Eastern mills. Smaller rails are quoted: 12-lb., $40: 16-lb., $40; 20-lb., $40; 30-lb. to 40-lb., $38; 40-lb. to standard, $36, with the usual advance for small orders. We quote angle bars, 2.20c.; fish plates, 2.15c.; spikes, 2.20c.; bolts, 3.20c.

Structural Material.—There is nothing new to note; demand is fair. We quote in large lots at tidewater: Beams, 2.10c.; channels, 2.10c.; angles, 2c.; tees, 2.15c.; zees, 2.10c.

METAL MARKET.

NEW YORK, July 13.

Gold and Silver.

Gold and Silver Exports and Imports
At all United States ports in May and year.

Metal.	May.		Year.	
	1899.	1900.	1899.	1900.
GOLD.				
Exports	$2,049,255	$12,209,596	$6,644,997	$22,330,474
Imports	3,070,265	3,706,161	20,281,961	12,569,812
Excess	E. $1,021,010	E. $8,503,435	I. $13,636,964	E. $9,460,662
SILVER.				
Exports	4,436,549	6,066,058	23,276,649	25,184,366
Imports	3,010,353	2,461,493	12,541,322	13,793,352
Excess	E. $1,426,196	E. $3,604,565	E. $10,735,327	E. $11,391,014

This statement includes the exports and imports at all United States ports, the figures being furnished by the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending July 12th, 1900, and for years from January 1st, 1900, 1899, 1898, 1897.

Period.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$2,100	$45,353	$771,118	$166,973	E. $560,892
1900..	20,585,292	1,578,308	21,597,150	2,404,143	E. 38,199,991
1899..	11,418,767	7,268,768	14,899,082	1,794,366	E. 17,254,716
1898..	4,521,054	68,903,049	18,077,640	1,835,293	I. 48,219,648
1897.	14,161,564	1,933,885	21,965,898	1,489,959	E. 32,703,618

The gold exports and imports were in small parcels. The silver exported went chiefly to London; that imported came from Mexico and the West Indies.

The United States Assay Office in New York reports the total receipts of silver at 89,000 oz. for the week. Total since January 1st, 2,645,000 oz.

Average Prices of Silver per oz. Troy.

Month.	1900.		1899.		1898	
	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.
January...	27.30	59.30	27.42	59.36	26.29	56.77
February..	27.49	59 76	27.44	59.42	25.89	56.07
March....	27.59	59.81	27.48	59.64	25.47	54.90
April.....	27.41	59.59	27.65	60.10	25.95	56.02
May.....	27.56	59.96	28.15	61.23	26.31	56.98
June.....	27.81	60.42	27 77	60 43	27.04	58.61
July.....	.....	.....	27.71	60 26	27.32	59.06
August....	.....	....	27.62	60.00	27 48	59.54
September	.....	.....	27.15	58.89	28.05	60.68
October ..	.....	.....	26.70	57.98	27.90	60.42
November	....	....	27 02	58.67	27.93	60.60
December.	....	.....	27.21	58.99	27.45	59.42
Year....	.....	.....	27.44	59 58	2.76	58.2

The New York prices are per fine ounce; the London quotation is per standard ounce, 925 fine.

Average Prices of Metals per lb., New York.

Month.	COPPER.		TIN.		LEAD.		SPELTER	
	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1899.
Jan	15.58	14.26	27.07	22.48	4.68	4.18	4.65	5.34
Feb.....	15.78	17.02	30.58	24.20	4.675	4.49	4.64	6.28
March...	16.29	16.35	32.90	23.82	4.675	4.37	4.60	6.31
April....	16.76	17.13	30.90	24.98	4.675	4.31	4.71	6.67
May.....	16.34	17.20	29.37	25.76	4.181	4.44	4.53	6.88
June.....	15.75	16.89	30 50	25.85	3.901	4.43	4.29	5.98
July.....	.....	17.10	.....	29.63	.....	4.52	.....	5.82
August..	...	17.42	.....	31.53	.....	4.57	.....	5.65
Sept.....	.....	17.34	.....	32 74	.....	4.58	.....	5.50
October..	.....	16.94	.....	31.99	.....	4.575	.....	5.32
Nov.....	.....	16.49	.....	28.51	.....	4.575	.....	4.64
Dec.....	.....	15.85	.....	25.88	.....	4.64	.....	4.66
Year.....	.....	16.67	.....	25.12	.....	4.47	.....	5.75

Commencing with March 17th, the prices given in the table for copper are the averages for electrolytic copper; this is the case for both 1899 and 1900. The average price for Lake copper for the year 1899 was 17.61c. For January, 1900, the average price of Lake copper was 16.33c.; for February, 16.08c.; for March, 16.55c.; for April, 16.94c.; for May, 16.55c.; for June, 16c.

Prices of Foreign Coins.

	Bid.	Asked
Mexican dollars	$ .48	$ .49½
Peruvian soles and Chilean pesos	.45	.46½
Victoria sovereigns	4.86½	4.88
Twenty francs	3.86½	3.90
Twenty marks	4.77	4.88
Spanish 25 pesetas	4.78	4.82

Financial Notes of the Week.

Business is quiet and there is less activity than for many weeks past. Uncertainty about the grain crops, the Chinese complications and the coming election combine to make matters dull. Money in New York continues easy and it is quite possible that further loans to Europe may be made, involving an outward movement of gold.

Silver has been steady to firm, a French order for 30,000 kgs. having absorbed the floating stocks. News from the East is still calculated to tone the market.

The statement of the New York banks—including the 63 banks represented in the Clearing House—for the week ending July 7th, gives the following totals, comparison being made with the corresponding weeks in 1899 and 1898:

	1898	1899.	1900.
Loans and discounts	$633,675,300	$793,852,900	$802,899,900
Deposits	758,168,000	902,178,900	881,818,800
Circulation	14 620,400	13.621 200	23.191,800
Reserve:			
Specie	180,498,700	176 827,600	165,313,900
Legal tenders	62 333,600	53,779.600	70,737,500
Total reserve	$242,832,300	$230,607,200	$236,651,400
Legal requirements..	189,517,600	225,544,725	220,462,200
Balance, surplus....	$53,345,300	$5,062,475	$15,589,200

Changes for the week, this year, were an increase of $67,100 in circulation; decreases of $5,578,600 in loans and discounts, $6,400,500 in deposits, $1,365,700 in specie, $1,504,600 in legal tenders, and $1,270,175 in surplus reserve.

The statement of the United States Treasury on Tuesday, July 3d, shows balances in excess of outstanding certificates as below, comparison

Imports and Exports of Metals.

Port.	Week, July 10.		Year 1900.	
	Expts.	Impts.	Expts.	Impts.
***New York.**				
Aluminum.....long tons	.....	.....	82	51
Antimony ore... " "	.....	**40	.....	1,680
" regulus.. " "	.....	....	.....	625
Chrome ore..... " "	.....	.....	.....	1,501
Copper, fine .... " "	1,893	586	58,859	11,797
" matte.. " "	105	.....	2,211	77
" ore. .. " "	.....	230	.....	4,484
" ash..... " "	.....	.....	.....	64
Ferro-Chrome .. " "	.....	.....	.....	31
Ferro-mangan'se " "	.....	.....	.....	342
Iron ore..... " "	.....	**54	.....	17,501
" pig, bar, rod " "	....	**100	5,809	3,643
" pipe..... " "	421	.....	8,609	157
" plates, sheets " "	.....	.....	880	13
Lead..... " "	200	1,425	41,051	39,281
" ore.. ..... " "	.....	.....	.....	7,600
" dross..... " "	.....	....	.....	24
Manganese, ore . " "	.....	.....	.....	8,614
Metals, old, scrap " "	.....	**224	1,990	4,611
Composition... " "	.....	.....	1,025	185
Nails. ... . " "	948	.....	13,109	.....
Nickel .. " "	55	.....	1,158	67
" ore. matte " "	.....	*77	.....	5,334
§Railr'd material " "	.....	**40	....	2,578
Rails, old..... " "	.....	.....	1,037	518
Spiegeleisen..... " "	.....	.....	.....	1,512
Steel bars, plates " "	.....	406	13,187	10,961
" rails..... " "	285	.....	25,018	18
" wire..... " "	232	.....	14,086	.....
" not speci'd " "	5	**41	1.902	1,709
Tin ..... " "	.....	300	5	13,971
" and black plates" "	.....	1313	.....	18,022
Zinc..... ..... " "	....	28	322	172
" dross..... " "	.....	.....	412	50
" ashes, skim " "	15	.....	732	20
" ore..... " "	.....	.....	8,073	.....
†Baltimore.				
Chrome ore.....long tons	.....	800	....	3,730
Copper, fine..... " "	664	.....	23,456	2,556
" matte... " "	.....	.....	.....	.....
Ferro-manganese " "	.....	.....	.....	155
Iron pig, bar. etc. " "	.....	927	2,905	19,053
" ore..... " "	.....	7,222	.....	246,715
" pyrites..... " "	.....	.....	.....	18,489
Manganese ore.. " "	.....	.....	.....	89,530
Metals, old & Rails" "	.....	.....	384	.....
Nails. ... . " "	.....	.....	1,206	.. ..
Pipe, iron & steel " "	45	.....	3,028	.....
Silicon .. . " "	.....	.....	.....	85
Spiegeleisen.. " "	.....	.....	.....	659
Steel, bars, etc.. " "	119	.. ....	18,913	1,388
" wire ... . " "	.....	16	663	95
" rails..... . " "	2,920	... .	52,305	....
Tin..... " "	.....	.....	.....	111
" and blackplates" "	.....	32	.....	1,631
‡Philadelphia.				
Antimony. ....long tons	.....	.....	... .	14
Chrome ore... .... " "	.....	.....	.....	3,650
Copper, fine..... " "	150	.....	2,552	.....
" ore..... " "	.... ..	**3,424	.....	21,697
Iron, pig..... " "	.....	**491	.....	1,678
" ore.... " "	.....	**9,926	.....	121,049
" pyrites .... " "	.....	.....	...	87,455
Manganese ore.. " "	.....	.....	. ..	58,763
Spiegeleisen..... " "	.....	.....	... ..	3,953
Tin..... " "	.....	25	.....	243
" and black plates" "	.....	.....	.....	1,981
Zinc..... " "	.....	.....	67	.. ..
" ore..... " "	1,007	.....	2,507	.....

*New York Metal Exchange returns. †By our Special Correspondent. ‡ Not specified. §§ Monthly returns, Treasury Department. ‡ Report of Mr. John Stanton. ‖ Week July 3rd. **Week ending July 2nd. Exports include domestic and foreign metals.

Total United States.§§

Articles.	May, 1900.		Year, 1900.	
	Expts.	Impts.	Expts.	Impts.
Antimony.. long tons	.... ..	151	....	973
" ore.... " "	.....	213	.....	1,287
Copper, fine, in all forms " "	‡13,997	§83,745	‡73,643	21,393
Iron, pig & bar.. " "	968	5,994	41.374	35,589
" ore..... " "	2,841	81,525	2,961	299,487
Iron & steel plates " "	8,299	161	18,182	4,521
Iron & steel rails " "	45,616	294	144,439	763
" " wire " "	9,351	117	37,080	716
Lead, pigs, bars & old ..... " "	5	3	329	689
Lead in ore, etc. " "	6,657	5,647	35,565	34,971
Manganese ore and oxide. .... " "		25,746	.....	184,472
Nickel "&matte " "	121	.....	925	.....
Nails, cut. . " "	1,071	.....	4,600	.....
" wire .. " "	1,752	.....	16,441	.....
Quicksilver..... " "	18	.....	203	.....
Steel, billets. rods, etc..... " "	1,573	2,235	25,542	15,943
Tin ... " "	89	3,251	216	14,772
" &black plates " "	85	6,181	1 7	28,588
Zinc . " "	2,757	38	10,698	471
" ore ... . " "	2.944	.....	14,874	.....

Import Duties on Metals.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1½c. a lb. on lead in ores; 2½c per lb. on pigs, bars, etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c per lb. Spelter or zinc, 1½c per lb. on pigs and bars 2c. on sheets etc Copper, tin and platinum are free of duty.

being made with the statement of the corresponding day last week:

	June 27.	July 3.	Changes.
Gold	$69,413,691	$70,511,981	I. $1,098,290
Silver ...	15,001,112	15,678,947	I. 677,835
Legal tenders.....	25,045,356	26,450,623	I. 1,405,267
Treas notes, etc...	681,741	660,564	D. 21,177
Totals	$110,141,900	$113,302,115	I. $3,160,215

Treasury deposits with national banks amounted to $101,790,323, showing a decrease of $2,276,634 for the week.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding date last year:

	1899.		1900.	
Banks.	Gold.	Silver.	Gold.	Silver.
N.Y. Ass'd..	$176,827,600	.....	$165,313,900	.....
England....	161,583,395	.....	161,458,085	.....
France.. ...	379,945,540	$243,134,645	430,280,110	$249,370,290
Germany....	136,445,000	70,285,000	146,390,000	75,415,000
Spain.. ...	64,800,000	66,980,000	68,445,000	84,685,000
Aus.-Hun ..	151,040,000	53,075,000	188,255,000	48 365,000
Neth'l'ds ...	15,825,000	31,075,000	24,360,000	30,165,000
Belgium....	14,555,000	7,275,000	14,015,000	7,010,000
Italy	75,535,000	10,010,000	77,260,000	8,280,000
Russia	178,825,000	25,960,000	408,960,000	40,885,000

The returns of the Associated Banks of New York are of date July 7th and the others are of date July 6th, as reported by the Commercial and Financial Chronicle cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Shipments of silver from London to the East for the year up to June 28th, 1900, are reported by Messrs. Pixley & Abell's circular as follows:

	1899.	1900.	Changes.
India.....	£2,381,900	£2,900,127	I. £518,227
China.....	641,296	1,256,536	I. 615,240
The Straits	41,046	215,443	I. 174,397
Totals	£3,064,242	£4,372,106	I. £1,307,864

Arrivals for the week, this year, were £118,000 in bar silver from New York, £17,000 from Australia, and £8,000 from Chile; total, £143,000. Shipments were £90,000 in bar silver to Bombay.

Indian exchange continues unchanged, and the Council bills offered in London sold at an average of 15.97d. per rupee. The Indian Government has again been a buyer of silver in London.

The coinage executed at the mints of the United States during the fiscal year ending June 30th is reported by the Bureau of the Mint as below:

	1899.		1900.	
Denomination	Pieces.	Value.	Pieces.	Value.
Double eags.	3,793,043	$75,860,860.00	3,924,635	$78,492,700.00
Eagles.....	1,276,892	12,768,920.00	2,177,934	21,779,340.00
Half eagles..	3,897,422	19,487,110.00	1,505,811	7,529,055.00
Quar. eagles	24,116	60,290.00	54,406	136,015.00
Total gold.	8,991,473	$108,177,180.00	7,662,786	$107,937,110.00
Dollars ...	18,254,709	$18,254,709.00	18,244,984	18,244,981.00
Half-dollars	6,433,259	3,216,629.50	10,689,717	5,344,858.50
Quarter-dol.	15,628,709	3,907,177.25	19,263,569	4,815,892.25
Dimes.....	24,430,709	2,343,070.90	27,160 984	2,716,098.40
Total sil..	63,747,386	$27,721,586.65	75,359,254	31,121,833.15
Five c.nicks	11,539,732	576,986.60	30,749,992	1,537,499.60
Cent c.bronze	37,992,354	379,923.54	70,551,761	705,517.61
Total minr.	49,532,086	$956,910.14	101,301,753	$2,243,017.21
Total c'n'g	122,270,945	$136,855,676.79	184,323,793	$141,301,960.26

The total increase this year is $4,446,283, due to the heavier coinage of silver and minor pieces.

The Treasury Department estimates the money in the United States on July 1st as follows:

	Totals.	In Treasury.	Circulation.
Gold Coin (inc bullion in Treas.)....	$1,036,031,645	$220,557,185	$614,918,991
Gold Certifi.....	.....	.....	240,555,469
Silver Dollars.....	490,618,052	15,689,249	66,429,476
Silver Certifi.	.....	.....	408,499,347
Subsid. Silver.....	82,901,023	6,606 973	76,294 050
Treas. Notes of 1890	76,027.000	779,503	75,247,497
U. S. Notes.....	346,681,016	26,361,902	316,614.114
Currency Certifi...	.....	.....	3,705,000
Nat. Bank Notes..	309,640,444	9 478,892	300,161,552
Total.....	$2,341 899,180	$279.473,684	$2,062,425,496

For redemption of outstanding certificates an exact equivalent in amount of the appropriate kinds of money is held in the Treasury, and is not included in the account of money held as assets of the Government. This statement of money held in the Treasury as assets of the Government does not include deposits of public money in National Bank depositaries to the credit of the Treasury of the United States, and amounting to $95,882,502. The estimated circulation per capita on July 1st was $26.50. The total circulation shows a decrease of $12,262,375 from June 1st, but an increase of $129,941,257 as compared with July 1st, 1899.

Other Metals.

Daily Prices of Metals in New York.

	Silver.			Copper.					Spelter.	
July.	Sterling Exchange.	Fine oz. Cts.	London. Pence.	Lake cts. ₱ lb.	Electrolytic ₱ lb.	London, £ ₱ ton.	Tin, cts ₱ lb.	Lead cts. ₱ lb.	N. Y. cts. ₱ lb.	St. L. cts. ₱ lb.
7	4.86¼	61⅝	28 7/16	16	15¾ @15⅞	....	31¼	4.07½ @4.12½	4.25	4.10 @4.15
9	4.86¼	61¾	28 8/16	16	15¾ @15⅞	71⅛	31¾	3.95 @4	4.25	4.10
10	4.86½	61¾	28⅛	16	15⅞	71¾	32	3.95 @4	4.25	4.10
11	4.86¼	61⅝	28 7/16	16	15⅞	72⅝	33	3.95 @4	4.25	4.10
12	4.86¼	61⅝	28 7/16	16 @16¼	15⅞ @16	72	33¼	3.95 @4	4.25 @4.30	4.10 @4.15
13	4.86½	61¼	28⅜	16 @16¼	15⅞ @16	72⅛	33¼	3.95 @4	4.25 @4.30	4.10 @4.15

London quotations are per long ton (2,240 lbs.) standard copper, which is now the equivalent of the former g. m. b's. The New York quotations for electrolytic copper are for cakes, ingots or wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures.

Copper.—There has been a little more activity, a number of transactions having been closed for domestic consumption as well as for export. Business, however, has been confined to early deliveries only, but the prices for this showed a slight improvement from those which ruled during the last few weeks. We quote Lake at 16@16⅛c., electrolytic in cakes, wirebars and ingots, at 15⅞@16c., cathodes at 15⅝@15¾c., and casting copper at 15¾.

The London market for speculative kinds has been fairly strong, but the highest price established during the week was not quite upheld. G. M. B.'s, which closed last week at £71 for both spot and three months, opened 2s. 6d. higher on Monday and advanced 12s. 6d. on Tuesday, further 10s. on Wednesday, but on Thursday declined to £72, closing to-day at £72 2s. 6d. for both spot and three months.

Refined and manufactured sorts we quote: English tough, £76 10s.@£77 10s.; best selected, £77@£78; strong sheets, £84@£85; India sheets, £82@£83; yellow metal, 6⅞@7d.

Tin.—The market here has been more active and the corner has developed unexpected strength. The metal has sold as high as 33c. and large transactions have taken place ranging between 32 and 33c. For later deliveries large discounts are made. The closing price is 33¼c. for spot.

The London market has fluctuated considerably in an upward direction. It closed last week at £139 10s. for spot, £132 10s. for three months and opened this week at £141 for spot, £134 for three months. On Tuesday it declined to £140 for spot, £133 15s. for three months, on Wednesday it was £141 and £136, respectively, and on Thursday £143 and £138. It closes at £143 for spot, £137 10s. for three months.

Lead.—The market this week has declined another ⅛c. per lb. Nobody is able to offer us a satisfactory explanation of the decline, but its effect has been to curtail the buying movement. We quote New York at 3.95@4c., St. Louis at 3.90@3.95c.

The European market has been very firm, Spanish lead being quoted at £17 10s., English brands £17 12s. 6d.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is dull at the late decline. The price for Missouri and desilverized lead is 3.95c. Trading is of a retail character and buyers are rather skeptical. The majority anticipate another decline.

Spelter.—The market has been dull and prices have given way somewhat. Smelters are reported to be well sold and our cables from Europe indicate that a turn in that market may be looked for. We quote St. Louis at 4.10@4.15c., New York at 4.25@4.30c.

The quotations are cabled from London as £19 10s. for good ordinaries, £19 15s. for specials.

Antimony.—We quote Cookson's 10½c.; Hallett's 9½c.; U. S. Star, 9½c.

Nickel.—The price continues firm at 50@60c. per lb., according to size and terms of order.

Platinum.—Consumption is increasing and prices are strong and likely to go higher. For ingot platinum in large quantities $18.20 per Troy oz. is quoted in New York.

Chemical ware (crucibles and dishes), best hammered metal from store in large quantities, is worth 72c. per gram, showing an increase of 1½c.

Quicksilver.—The New York quotation is unchanged at $51 per flask for large lots; for small orders $52.50@$54 is asked. San Francisco quotations are $51.50@$52 for local deliveries, and $46.50@$47 for export.

The London price continues £9 10s. per flask, with the same figure quoted from second hands.

Minor Metals and Alloys.—Wholesale prices, f. o. b. works, are as follows:

Aluminum.	Per lb.		Per lb.
No. 1, 99% ingots	.33@37c.	Ferro Titanium (20%)	$1.00
No. 2, 90% ingots	.31@34c.	Ferro-Tungsten (37%)	.35c
Rolled sheets	.42c. up	Magnesium	$2.75@$3
Alum.-bronze	20@23c.	Manganese (over 99%)	$1.05
Nickel-alum	.33@39c.	Mangan'e Cop. (20% Mn)	32c.
Bismuth	$1.60	Mangan'e Cop. (30% Mn)	38c.
Chromium (over 99%)	1.00	Molybdenum (Best)	$1.45
Copper, red oxide	.60c.	Phosphorus	.45@47½c.
Ferro-Molyb'um (50%)	.$1.05	Tungsten (Best)	.95c.
Ferro-Titanium (10%)	. 90c.		

Variations in prices depend chiefly on the size of the order.

LATE NEWS.

A despatch from Birmingham, Ala., July 12th, says: "Pig iron and pipe shipments reached a low ebb in June. The total shipments from Alabama and Tennessee were 93,942 tons a decrease from last June of 58,000 tons. Pig iron shipments from the Birmingham District alone were 50,000 tons, a decrease of 40,000 tons. Exported iron amounted to 11,000 tons, a decrease of 3,000 tons. The total pipe shipments were 7,000 tons."

A dispatch from Birmingham, Ala., July 13th, says: "The Empire Coal and Coke Company was formally organized to-day by the election of F. M. Davis, of New York, president; Charles A. Stillman, of Birmingham, secretary and treasurer, and Henry W. Milner, of New Castle, Ala., general manager. The company has 14,000 acres of coal land on the new Ensley Southern Railroad and will open mines and build coke ovens. The capital stock is $700,000, of which half is preferred. The new concern is one of the strongest ever organized in the Southern coalfields."

A dispatch from Pittsburg, July 12th, says: "The deal for the formation of the Crucible Steel Company of America was consummated to-day, when the committee announced to the meeting of manufacturers that the stock issue of $50,000,000 had been over-subscribed. The manufacturers connected with the new combine represent 95% of the crucible steel interests of the country. Immediately after the committee's announcement the meeting elected the following board of directors: Wm. G. Park, Reuben Miller, James W. Brown, Herbert Du Poy, Frank B. Smith, Benjamin Atha, G. Bruce Harton, R. E. Jennings, C. H. Halcolm, J. M. May, H. H.. Dickey, Jas. H. Park, A. W. Black and L. D. York. A committee, composed of Reuben Miller, James W. Brown and Benjamin Atha, was appointed to work out the details of the big company. This committee will, in all likelihood, send attorneys to New Jersey to-morrow to secure a charter. Of the $50,000,000 stock subscribed $40,000,000 was taken by Pittsburg manufacturers and the bulk of the remaining $10,000,000 by Pittsburg investors."

The monthly report of the laboratory of the Ontario Government assay office, located at Belleville, which is conducted by the Bureau of Mines as an aid to the discovery and development of the mineral resources of Ontario, shows receipt of 155 samples sent in for examination during the month of June. The assay or analytical determinations aggregated 190, consisting of 85 for gold, 46 silver, 26 copper, 5 nickel, 1 platinum, etc. Fifteen iron ores from Eastern Ontario were received for partial or complete analysis as to smelting value on which 28 determinations were made. Of these determinations 157 were done for the public, on which fees aggregating $138 were collected. The Bureau of Mines required 33 determinations from the laboratory during the month. The samples sent in for identification or report as to probable commercial value, numbering 16, on which nominal fees amounting to $9 were collected. The gold ores came from the Michipicoten, Wabigoon and Rat Portage districts where there are developments going on showing deposits of auriferous free-milling quartz carrying paying values. The gold mills working in these districts are giving satisfactory returns under experienced management. The nickel-copper ores came from the Sudbury District where there is activity in development of properties owing to the rapid increase of 40% in commercial value of refined nickel. Reports received from parties interested in mica mining in Loughboro, Bedford and Hinchinbrooke townships, Addington County, tend to prove that the industry is becoming important. This is probably the most profitable mining industry in the district, as it requires only cheap methods of securing the raw material, no expensive methods of treatment to obtain the dressed mica which finds a ready cash sale for electrical purposes. The laboratory has received for the past three months a large number of samples for check assay and analysis, or as umpire work in settling disputes as to values. Considerable investments are at present being made in iron, nickel-copper and gold properties in the North Hastings, Sudbury, Michipicoten and Rainy River districts on the strength of favorable reports from the laboratory.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 850.)

New York. July 13.

The imports and exports of chemicals, etc., at all United States ports in May were as below:

Articles.	May.		Year, 1900.	
	Imports.	Exports.	Imports.	Exports.
Bleaching Powder, lbs.	9,929,411	24,081	65,950,233	147,908
Caustic Soda, lbs.	821,737	165,622	4,496,214	506,869
Sal Soda, lbs	480,500	.....	2,112,696	.....
Soda Ash, lbs.	6,681,459	.....	45,413,706	17,661
Chlorate of Potash, lbs.	78,387	2,240	457,526	122,960
Copper Sulphate, lbs.	.....	5,873,719	.....	37,111,578
Nitrate of Soda, tons	16,085	448	60,786	1,402
Muriate of Potash, lbs.	3,964,912	22,804	30,904,490	278,062
Phosphate Rock, tons.	3,286	70,047	38,860	278,325
Pyrites, "	33,112	.....	142,515	.....
Brimstone "	12,113	151	73,440	408
Saltpeter, lbs.	....	.....	4,558,826	947

All imports showed a decrease in May as compared with April, excepting in sal soda, nitrate of soda and pyrites. The exports were less in nearly all articles.

Heavy Chemicals.—Immediate business is dull. For future delivery orders for bicarb, soda are being booked on basis of quotations below. Caustic soda for later shipment was bought at $1.85 per 100 lbs. f. o. b. works. Bleaching powder is easy in price. Chlorate of potash is stronger.

We quote per 100 lbs. as below:

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York.	In New York.
Alkali, 58%.	80@85	95@$1.00	85@90
" 48%.	85@90	$1.00@$1.05	1.02½@1.05
Caustic Soda, high test	$1.90@$2 00	2.25@2.30	$2.50@2.55
powd., 60%.	....	3.00@3.25	.....
70@74%.	.....	3.25@3.50	.....
98%.	.....	3 50@4.00	3.75@4.00
Sal Soda	70@80.	....	67½@70
" conc.	1.45@1.75	....	1.75
Bicarb. Soda.	1.25@1.37½	.....	2.25
" " extra	3.25@3.50	.....	.....
Bleach Pdr., Eng. prime.	.....	....	1.70@1.75
other br'nds.	....	.....	1.45@1.60
Chl. Pot cryst	....	9.12½@9.25	10.00@10.25
" powd.	....	9.25@9.50	10.25@10.50

Acids.—Sales of 30% acetic acid are reported at $1.60 per 100 lbs. Sulphuric contract deliveries are smaller. Blue vitriol is easy. Oxalic is in better request for shipment at $5.62½@$5.75 per 100 lbs., while spot holds at quotations below. Carbolic is strong and importers ask 23@24c. per lb. in drums, though second hands are understood to be shading these prices.

Quotations as below are for large lots delivered in New York and vicinity, per 100 lbs. unless otherwise specified.

Acetic, No.8 in lbs.	$1.62½	Nitric, 38°	$3.87½
Blue Vitriol.	4.62½@4.75	Nitric, 38°	4.12½
Aqua Fortis, 36°	3 62½	Nitric, 40°	4.37
Aqua Fortis, 38°	3 87½	Nitric, 42°	4.75d.
Aqua Fortis, 40°	4.12½	Oxalic	5.75@5.87½
Aqua Fortis, 42°	4.50	Sulphuric, 66°	1.20
Muriatic, 18°.	1.20	Sulphuric, 60°	1.05
Muriatic, 20°.	1.35	" bulk 50⁸ ton	14.00
Muriatic 22°.	1.50		

Brimstone.—New York imports this week amount to 2,060 tons. Spot best unmixed seconds are quoted at $21@$21.50 per ton; shipments in July, $21, and August to September, $20.50@$20.65.

The average monthly prices of best unmixed seconds as quoted by first hands are as follows, per long ton:

	Spot.	Shipments.
January	$21.78	$20.65
February	21.97	21.19
March	21.88	21.31
April	21.38	21.25
May	21.43	21.10
June	20.90	20.65
Average, 6 months	$21.56	$21.02

Best unmixed thirds during this period were worth about $2 per ton less.

Pyrites.—The new fertilizer plant of the Virginia-Carolina Chemical Company to be erected at Memphis, Tenn., will handle pyrites cinder, which is used by paint mills. Business in pyrites continues fair, and prices are practically unchanged.

We quote: Mineral City, Va., lump ore, $4.75 per long ton (basis 42%), and fines, $4.20. Charlemont, Mass., lump, $5.50, and fines, $5. Spanish pyrites, 13@15c. per unit, according to percentage of sulphur contents, delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46%@51% of sulphur; American, 42%@44%.

Fertilizing Chemicals.—Demand for the leading ammoniates continues to improve. It is announced that Armour & Company of Chicago will erect a large fertilizer manufacturing plant in Baltimore, on the water front at Locust Point, costing $200,000. Its output will be 50,000 tons of fertilizer a year. Electricity will be the motive power used in the factory, and operations are to begin by October 1st next. Besides consuming considerable quantities of their blood, bone and tankage, Armour & Company will still have much to sell to other fertilizing companies, says J. Allen Moore, their Eastern manager. The Virginia-Carolina Chemical Company will establish a plant at Memphis, Tenn., to have an annual capacity of 40,000 tons of fertilizer.

Sulphate of ammonia, gas liquor, for shipment, holds at $2.72½@$2.75 per 100 lbs., and on spot at $2.80@$2.82½. Large sales of blood are noted at $1.80@$1.85 per unit f. o. b. Chicago. Tankage is worth $1.75 and 10 per unit f. o. b. Chicago. Other quotations are fish scrap, wet, $11@$11½ per ton, and dry, $20@$23 f. o. b. factory; domestic steamed ground bone, $20@$22 per ton, as to quality; azotine, $1.90@$2 per unit; bone black, spent, $15@$16 per ton.

Nitrate of Soda.—The market is firmer on account of the late arrivals. Spot is quoted $1.70 per 100 lbs. ex-vessel to arrive, and $1.75 ex-store. Futures have advanced to $1.72½, owing to the extraordinary firmness in freights, the scarcity of tonnage and the higher prices of nitrate of soda on the west coast of South America, caused by the sudden demand in European markets. Then, again, the scarcity of labor and the increased cost of all materials, including coal, has had the effect of stimulating prices on the coast. In fact, the whole situation points toward much higher prices for nitrate of soda in all positions. Importers are therefore not anxious to sell at present prices, and prefer to hold their product for the expected advance later on. The European buying season is now approaching, and as this will keep up freight rates and prices for nitrate of soda, importers anticipate no risk in holding out for more money. Concerning the proposed combination, it takes some time to consummate any deal in this direction, but we understand from all indications that something will be done by April next. It is said that the "centralization" of sales scheme suggested by European interests and referred to in this column last week, will not go through.

The monthly average prices of spot nitrate of soda per 100 lbs. in New York as quoted by importers are as below, comparison being made with last year:

	1899.	1900.
January	$1.60	$1.80
February	1.64	1.96
March	1.62	2.18
April	1.66	2.04
May	1.60	1.78
June	1.63	1.68
Average, 6 months	$1.62	$1.90

The average increase in prices so far this year is 28c. per 100 lbs.

Phosphates.—New business is limited. The shipments of Florida high grade rock from Savannah in June amounted to 2,800 tons, making 55,521 tons for the six months of this year, as against 36,070 tons in 1899, showing an increase of 19,451 tons.

The Tennessee Phosphate Association has recommended to its members the following form of contract, which has also been adopted by the miners of Mt. Pleasant generally: "Sold to ——— for account of ———. Quantity ——— tons (10% more or less at seller's option) of dried phosphate rock. Quality—To contain phosphoric acid equivalent to a minimum of ——% of bone phosphate of lime (calculated on a dry basis, the phosphate being dried at 212° F.), maximum ——% oxide of iron and alumina combined (iron pyrites being excluded). Maximum ——% moisture allowed to seller. In the event that oxide of iron and alumina combined exceeds ——%, a deduction on a basis of two units of bone phosphate of lime for one unit of oxide of iron and alumina shall be made from the total bone phosphate of lime shown in analysis, and for each unit of bone phosphate of lime that this final result shall show less than the guarantee, an allowance shall be made on a basis of cost and freight price per unit. But should analysis show less than ——% bone phosphate of lime, or more than ——% of oxide of iron and alumina combined, the goods shall be considered the ——% grade and settlement made at $—— per ton. Price—$—— per ton of 2,240 lbs. free on board cars, basis Mt. Pleasant, Tenn. Weighing—Railroad weights at Mt. Pleasant, Tenn., to be accepted. Sampling—By public sampler, as goods are loaded aboard cars, who shall sample each car, and, after shipment is completed, shall mix and reduce to one sample, which shall be sealed and, upon request of buyer, sent to Dr. ———, chemist, for analysis, at buyer's expense; but in case the guarantee is not sustained, sellers shall pay the cost of analysis. The cost of sampling shall not exceed 4c. per ton and shall be divided between buyers and sellers. But if the buyers prefer to accept sellers' sampling, the above cost shall be obliterated. In any event, the f. o. b. sampling and Dr. ——— analysis shall be final. Shipment—At the rate of ——— during ———, subject to the railroad supplying equipment and to weather working days at Mt. Pleasant, Tenn. Terms—Sight draft against bill of lading for three-fourths value of rock as shipped, balance to be paid promptly upon receipt of copy of analysis, and if not paid within 10 days thereafter shall be subject to sight draft; except in case of shipments covering a period of months, in which case draft against bill of lading for three-fourths value shall be made as goods are shipped and settlement in full shall be made before the tenth day of each month for the previous month's shipment, or subject to sight draft, which buyers agree to protect. The sample in such cases shall be held by sampler until the fifth of the month, in order that the buyer may say if he desires an analysis, and if not advised by that time that he does desire analysis, it is understood and agreed that goods are satisfactory and settlement will be made in full. If contract specifies monthly deliveries, each month's delivery shall constitute a shipment (signed) Mt. Pleasant, Tenn., ——, 190-. The above contract we accept and agree to pay for said rock according to the above terms and conditions. (Signed.)"

Quotations on phosphate rock are as follows:

Phosphates	Per Ton F. o. b.	C i. f Un'd Kingdom or No Sea Ports.	
		Unit.	Long ton.
*Fla. hard rock (77@80%)	$7.50@8.00	7¾@8d	$12.09@12.48
*Fla. land pebble (68@73%)	4.35	6¾d	9.45
*Fla. Peace River (58@63%)	3.00@3 50	6½d	7.80
†Tenn. rock 78%, export.	4.00@4.50	7d@7¼d	10.92@11.31
†Tenn. 78% domestic.	3.30@3 50	.....	.....
†Tenn. 75% "	3.00@3.25	.....	.....
†Tenn. 72% "	2.65@2.75	.....	.....
‡So. Car. rock, crude	4.00	.....	.....
§So. Car. rock, dried	4.50	.....	.....
Algerian, rock (63@70%)	.....	6¾d	9.05
Algerian, rock (58@63%)	.....	6½d	7.80
Christmas Isle (80@85%)	.....	8½d	14.03
.....	.....	.....	.....

* Fernandina. † Mt. Pleasant. ‡ At mines. § On vessels, A hley River.

Liverpool. June 27.

(Special Report of Joseph P. Brunner & Co.)

Chemicals are quiet but steady, except for chlorine products, which still remain dull and featureless.

Soda ash is firm. We quote for tierces as follows: Leblanc ash, 48%, £4 15s.@£5; 58%, £5 5s.@£5 10s. per ton net cash; ammonia ash, 48%, £4 5s.@£4 10s.; 58%, £4 10s.@£4 15s. per ton net cash. Bags are 5s. per ton under price for tierces. Soda crystals are in good demand at generally £3 2s. 6d. per ton, less 5% for barrels, of 7s. less for bags, with special terms for certain favored markets. Caustic soda is well maintained, and a fair amount of business is reported at full prices. We quote spot range as follows: 60%, £9 5s.; 70%, £10 5s.; 74%, £10 15s.@£10 17s. 6d.; 76%, £11 5s.@£11 10s. per ton net cash.

Bleaching powder is only in retail demand, and for hardwood packages £6 10s.@£6 15s. per ton net cash is about a nominal range.

Chlorate of potash is dull at nominally 4¼d. per lb. net cash, but this figure could be shaded with firm bids, holders soliciting offers.

Bicarb. soda is selling at £6 15s. per ton, less 2½% for the finest quality in 1 cwt. kegs, with usual allowances for larger packages; also special quotations for certain export markets.

Sulphate of ammonia is quiet and offered at £11 5s.@£11 7s. 6d. per ton, less 2½% for good gray 24@25% in double bags f. o. b. here.

Nitrate of soda is in moderate request at £8@£8 5s. per ton, less 2½% for double bags f. o. b. here as to quality.

MINING STOCKS.

Complete quotations will be found on pages 59 and 60 of mining stocks listed and dealt in at:

Boston.	Philadelphia.	Montreal.
Colo. Springs.	Salt Lake.	London.
Denver.	San Francisco.	Mexico.
New York.	Spokane.	Paris.
	Toronto.	

New York. July 13.

Interest is sagging in the local market. Amalgamated sold off to $85, and later recovered to $86¼, while few sales of Anaconda were made around $38½. British Columbia Copper brought $10½. Union of North Carolina is still the subject of discussion on curb. A reorganization of the company was talked of, but treasurer T. C. Buck denies this report. The company has 25,000 shares of treasury shares on hand, which can be sold should the company be in need of funds for further improvements on its property. In explanation of the low price at which the stock is selling it is said that a number of shares had been placed as collateral loans, the liquidation of which has forced the market price to its present level. A few hundred shares sold this week at $2⅜. A private sale of 100,000 shares of Gold Hill, of North Carolina, is reported on curb, but the price is not given. American Smelting and Refining common gained

on sales from $36½@$37¾, while the preferred brought $88@$88¼.

In the Colorado section Isabella of Cripple Creek sold at $1.25@$1.27; Elkton Consolidated at $1.29; Argentum-Juniata, 23c.; Alamo, 15½c.; Cripple Creek Consolidated, 14½c.; Mollie Gibson, 26c.; Pharmacist, 13½@14c.; and Little Chief of Leadville, 16c.

A sale of Deadwood Terra was recorded at 45c.—the first in many weeks.

Few Comstocks made sales. Consolidated California & Virginia brought $1.60; Ophir, 73c.; and Hale & Norcross at 38c.

One thousand shares of Phoenix of Arizona changed hands at 7c.

Boston. July 12.

(From Our Special Correspondent.)

Whether it was the reaction after the holiday and dead quiet last week, or whether certain parties thought it time to put on a show of activity, is not certain; but there has been a stronger and more active market than for some weeks past. It was, however, almost wholly inside trading, and the public made very little show. Perhaps people may be tempted by the professional activity, but it seems rather doubtful. A really active market does not seem in sight before September.

The blind pool stocks made little show except Arcadian, which sold up to $21. Boston & Montana was quoted at $299, Butte & Boston at $63 and Parrot at $41. In the regulars, Calumet & Hecla sold at $728; Tamarack, $187; Osceola, $61; Baltic, $18.

The gold stocks were not prominent. Centennial-Eureka brought $25½ and Cochiti, $9@$9½.

Dominion Coal was strong at $39½@$40, and New England Gas and Coke at $16. The raiders do not seem to have had much success.

Colorado Springs. July 7.

(From Our Special Correspondent.)

The week among the Colorado gold securities showed a general improvement in market conditions which is likely to have an effect for some time to come.

There were two holidays this week, on July 4th and 5th. Yesterday and to-day the whole list of stocks registered a general advancement. Matoa is attracting attention on account of the recovery of the long-lost rich ore shoot at a depth of 1,000 ft. The stock closed at 36¾c., but sold as high as 37¾c. The Portland Company inaugurated its new policy of declaring dividends at the regular monthly meeting of the directors on the 5th. At that time a 6c. quarterly dividend was declared, amounting to $180,000 and payable on July 15th. With the July disbursement the dividends amount to $3,127,080. The Vindicator Consolidated Mining Company declared its usual 5c. quarterly dividend on the 5th, amounting to $55,000. It was expected that the dividend rate would be reduced temporarily to 2½c. a share, for the July quarter, owing to the extraordinary expenses to which the company has been subjected in installing a complete new plant of machinery on the main workings of the mine. However, these improvements were provided for by selling a block of treasury stock in the East several weeks ago.

The first annual meeting of the stockholders of the new Elkton Consolidated Mining and Milling Company will be held in this city July 9th to appraise the exact condition of the Elkton, Raven and Tornado mines, which were recently purchased by the Elkton Company for $1,125,000. Elkton shares are strong and in demand.

The Gold King Mining Company declared its July quarterly dividend on the 5th, amounting to 3c. a share, payable July 20th ($28,105), bringing the total up to $149,896. These shares are closely held and strong. The Mary McKinney Mining Company declared the July quarterly dividend on the 3d of 3c. a share, or $30,000, payable July 10th. The total dividends paid amount to $150,000.

At the annual meeting of the Union Gold Mining Company on the 3d it was disclosed that W. S. Stratton was the real purchaser of the 800,000 shares of capital stock accredited to a pseudo John Dern of Salt Lake City, Utah, several months ago. Mr. Stratton paid 50c. a share. This is the largest individual stock deal ever put through on the local stock markets.

The recent activity in National was a gigantic stock manipulation. The Eastern investor was warned two weeks in advance of the breaking of the boomlet and need not have become involved in the decline which has set in. The shares are selling about 13c. and are dropping. They were forced repeatedly to 16c., when universal unloading was indulged in by the insiders.

The dividends paid by the public companies of Cripple Creek during the first six months of the year amount to $3,233,000, as against $1,100,000 in 1899. The week's business on the old exchange amounted to 3,173,798 shares, of a cash value of $423,090.

Portland, Ore. July 7.

(From Our Special Correspondent.)

At no time in its history has the Eastern Oregon gold belt shown such substantial evidence of prosperity as at present. Faith in the future increases every day, and many mining men and investors are coming here with experience and money, which fact gives additional confidence on all sides. The Portland men are coming forward and putting their money into these mines. New companies are being formed on a solid basis, and confidence, which is the foundation of success, is everywhere felt. Portland is the depot for all supplies to this section and our business men are reaping rewards in every branch of trade. New-comers need not fear disappointment or privation, for the country is rich in product and you can reach the mines in most cases by rail and easy stages. The Portland Mining Stock Exchange is now ready for business and will be opened in a few days.

San Francisco. July 7.

(From Our Special Correspondent.)

This week has been almost all holiday, both Stock Exchanges having agreed to adjourn over from noon on Tuesday, July 3d, until July 9th. The business done on Monday and Tuesday was light.

Consolidated California & Virginia sold at $1.50@$1.55; Caledonia, $1.20; Confidence, 75c.; Ophir, 71@73c.; Hale & Norcross, 35c.; Sierra Nevada, 32c.; Best & Belcher, 28c. Standard Consolidated was $4 bid and $4.50 asked, with no sales.

The sales on regular call at the San Francisco Stock Exchange for the year to date compare as follows

	1899.	1900.
January, shares	121,955	164,400
February	350,860	112,000
March	272,625	252,730
April	209,215	121,500
May	164,580	171,015
June	201,375	129,505
Total	1,320,610	951,150

On the half-year's business this shows a falling off of 28% this year.

London. June 26.

(From Our Special Correspondent.)

The amount of business done in the mining section of the Stock Exchange continues to be very small. South Africans are not moving at all, though the end of the war is well in sight. The country will of course be under military rule for a considerable time and business and mining are not likely to expand with any rapidity just yet. The Chinese question has damped any inclination to speculate, and on all hands regret is expressed that no sooner is one incubus removed but another comes to take its place.

What business there has been in the mining market has been mostly centered in West Australians, where the battle of the sulphides still rages, and the uncertainty of the future of the Kalgoorlie mines affords speculators some opportunity for operations. A week or two ago the market was startled by the dismissal of the manager of the Ivanhoe Mine and by the statement that the product of the mine would be very much less than anticipated. Since then I have heard that the new manager, Mr. Mackinnon, who also superintends the Lake View Consols, has been able to give a very much more favorable report of the condition of the mine than the public were given to expect. The action of the directors in dismissing Mr. Hewitson remains as great a mystery as ever, and their attitude cannot fail to damage the share market. Mr. Mackinnon reports that the falling off in the monthly output from the oxidized ores will not be very great and that he sees no difficulty in producing 8,000 to 9,000 oz. per month for some considerable time. In the report for 1899 which you summarized in your issue of June 9th Mr. Hewitson, in speaking of the ore reserves, expressly said that their value was difficult to estimate, owing to the broken character of the main veins. So that the diligent student of the reports and doings at the mine had no reason for excessive surprise at the turn of affairs, nor any reason for finding fault with the manager.

Paris. July 1.

(From Our Special Correspondent.)

The Chinese complications and other causes have affected the stock market, and mining shares have been weaker and less in demand. The metallurgical shares have suffered especially, and the copper stocks have been lower. Speculation, in fact, has been uncertain.

The Anzin Company reports for last year a production of 3,154,002 tons of coal from its collieries. This is 13,105 tons less than in 1898, but owing to higher prices the profits were larger, and amounted to 10,080,926 fr. The dividend was 260 fr. per the one-hundredth part of the "denier" or original share, as they are now dealt in. This is an increase of 40 fr. over 1898. This shows how large our coal companies' profits were last year.

Two congresses of interest to financiers have been held in the Palais des Congress at the Exposition. The subjects discussed in each were similar, and most of the members and speakers in both were the same. The first was the International Congress of Public Securities, which held its sittings from June 4th to 8th; the second, the International Congress of Limited Liability Companies. Reports of the proceedings in each will be published in time. The question examined were too numerous to be summarized, but it may be stated that in the former a resolution was voted unanimously in favor of an international arrangement for the protection of proprietors of lost or stolen public securities. These may be recovered in France by means of certain formalities specified in a law of 1872, but difficulties arise when the securities are foreign and negotiable on foreign markets. Among the subjects treated in the second congress were the constitution of public companies, payment of the share capital, negotiation of vendors' shares given in part payment, founders' shares, preference shares, the issue of new shares before payment in full of the original shares, the right of shareholders to call meetings of proprietors, the protection of debenture holders, lottery bonds and the conditions for their issue, the publication of documents concernig the foundation of companies and agreements entered into, the nationality of companies, etc.

Two Chinese loans are dealt in on our Bourse, the 4% loan of 1895, guaranteed by Russia, and the 5% railroad loan of 1898. There is no speculation in these at present, for no one knows just how to take the future of that strange country.

Azote.

DIVIDENDS.

NAME OF COMPANY.	Latest Dividend. Date	Per share.	Total.	Total to date.
		$	$	$
†Amalgamated.	July 30	2.00	1,500,000	6,000,000
Am. Car & Fdry, com.	Aug. 1	.50	..	.....
Am. Car & Fdry, pf ..	Aug. 1	1.75	.....	.....
§Am. Cement	July 16	3.00	....	.....
Am. Cement, extra. ..	July 16	1.00	.....	.....
§Am. Coal, pf., Md ..	July 16	1.00	.....	.....
†Am. Steel Hoop, pf. .	July 31	1.75	....	.....
†Am. Tin Plate, pf. ..	July 31	1 75	... ...	.....
†Cent'l Eureka, Utah.	July 20	1.00	100,000	2,367,700
*Cordell Zinc, Mo. ..	July 16	.05	3,000	24,000
*Daly-West, Utah ...	July 17	.25	37,500	420,000
*Empire State, Ida ..	July 16	.30	29,554	524,917
§Empire Steel & I., pf	July 21	3.00	.....	.....
†Federal Steel, pf.....	July 20	1.50	932,067	5,725,587
†Gold King, Colo.....	July 20	.03	28,105	149,896
†Mary McKin'y, Colo.	July 10	.03	30,000	150,000
†National Salt, com...	Aug. 1	1.50	.....	.....
†Nat'l Tube, com.....	Aug. 15	1.50	.....	.....
†New Haven I. & St	July 16	.15	... ...	... ...
†Parrot, Mont.	July 30	1.50	344,775	4,049,050
Penna. Steel, pf.	July 16	1.75	26,250	78,750
Pittsburg Coal, pf ..	July 25	1.75	.. ..	.....
†Portland, Colo.	July 15	.06	180,000	3,127,080
Quicksilver, pf., Cal ..	July 16	.50	21,500	1,866,911
Susq Iron & Steel....	July 16	3.00	... .	.....
*Swansea, Utah.	July 10	.05	5,000	241,500
†Tenn. C., I., common	Aug. 1	2.00	.....	.. ....
†Tenn. C. I. & RR , pf.	Aug. 1	2.00	.....	.....
Texas & Pacific Coal .	July 26	1.50	.....	.....
†United Zinc, pf., Mo.	July 16	.50	6,497	21,892
†Vindicator Con., Colo.	July 25	.05	51,500	465,500

* Monthly. † Quarterly. § Semi-annual.

ANNUAL MEETINGS.

Name of Co.	Locat'n.	Date.	Place of Meeting.
Centennial.....	Mich .	July 13.	60 State st., Boston.
Golden Fleece...	Colo ...	July 20.	Council Bluffs, Iowa.
Homestake	S. Dak.	July 18.	San Francisco, Cal
*Ophir	Utah...	July 19.	Salt Lake City, Utah
San Antonio.....	Mexico.	July 19.	40 Wall St., N. Y.
.....	.....	.....	.....

*Special meeting.

ASSESSMENTS.

NAME OF COMPANY.	Location.	No	Delinq.	Sale.	Amt.
Alaska.....	Utah	...	Aug. 4	Aug. 25	.02
Alta	Nev.	65	July 10	July 31	.05
Andes.....	Nev.,	51	Aug. 6	Aug. 27	.05
Cadmus.....	Cal.	...	July 25	.....	.10
California Borax	Cal.	3	July 5	July 30	2 00
Crown Point.	Nev.	70	July 18	Aug 8	.05
Eureka Con. Drift....	Cal.	25	June 30	July 21	.01
Eutonia	Utah	1	July 6	July 17	.00½
Father de Smet.....	S.D'k	3	July 9	Aug. 6	.25
Garibaldi	Cal.	2	July 9	July 31	.04
Geyser-Marion	Utah	...	June 27	July 30	.03
Goleta Con	Cal.	1	July 16	Aug. 15	.06
Gould & Curry.....	Nev.	90	July 10	July 31	.15
Great Bonanza.....	Utah	...	Aug. 3	....	.00½
Joe Bowers, Ext.....	Utah	8	July 20	Aug. 7	.01
Mammoth Garfield ..	Cal.	...	Aug. 4	Oct. 2	.17½
May Day..... ...	Cal.	4	June 6	July 25	.10
Melcher...	Utah	2	June 29	July 16	.01
Meteor	Utah	...	July 10	Aug. 14	.00⅛
National Con.....	Cal.	12	July 9	Aug. 1	.05
Old Susan.....	Utah	1	Aug. 2	Aug. 21	.00¾
Pacific.....	Utah	3	July 10	July 31	.00½
Reward	Cal.	...	July 23	.....	.02
Rich Bar Gravel.....	Cal.	1	July 30	Aug. 22	.06
Ruby Hill	Utah	1	July 10	Aug. 10	.00¼
Silver State.....	Utah	...	July 2	July 20	.00½
Spanish Con.....	Cal.	...	July 16	.....	.05
Star.....	Utah	...	June 26	July 16	.01
Tesora.....	Utah	...	July 12	July 28	.02½
Tetro.....	Utah	13	June 30	July 21	.01
Yellow Jacket.....	Nev.	4	July 26	Aug. 31	.10
....	.....	...	.....	.....	.....
....	.....	...	.....	.....	.....

STOCK QUOTATIONS.

NEW YORK.

Name of Company	Location.	Par val.	July 6. H.	July 6. L.	July 7. H.	July 7. L.	July 9. H.	July 9. L.	July 10. H.	July 10. L.	July 11. H.	July 11. L.	July 12. H.	July 12. L.	Sales
Alamo	Colo	1	.14				.15½		.14½		13½				2,700
Amalgamated C	Mont.	100	86.25	85.75	86 00	85.00	85 50	85.00	88 00	84.75	86.10	85.50	85.50	85 00	1,600
*Anaconda, c	"	25					38 00		40.00		40.25		40.25		1,162
Anaconda Gold	Colo.	5	.37				.35		.35		.38		.45	.39	50
Argentum-Jun.	"	2	.18		.22		.19		.18		.19				1,500
Ariz. Lead	Ariz	25	15.00		15.00		15.00		15 00		15 00		15.0	12 00	
Belcher	Nev.	3	.14				.15		.14		.12		.12		
Best & Belcher	"	3	.22				.25		.22		.20				
Brit.Col.Copper	B. C.	1	11.00	10.63	11.00	10 63	10 75	10.50	10 75	10.50	10.75	10.50	11.0	10.75	6 0
Brunswick	Cal.	1									.18				100
Catalpa	Colo.	10	.09				.09		.09		.09		.09		
Choctar	Nev.	3	.15				.15		.15		.5		.16		
Chrysolite	Colo.	20	.04				.04		.04		.04		.04		
Comstock T	Nev.	100	.03½		.03½		.03½		.03½		.03½		.03		5,500
" bonds	"	100	63				63		.13		.03		.03		
Con. Cal. & Va	"	2½	1.40				1.60		1.45		1 40		1.40		50
Creede & C. C.	Colo.	1	.13								.09		.09		1 000
Crescent	"	10	.12				.09				.09		.09		3.0
Cripple Cr. Con.		1			.14		14½								1,500
Daly	Utah	20	1 00				1 00		1 00		1.00		1.00		
Deadw'd Terra	S.Dak.	25	4				.45		40		.4		.4		30
Elkton	Colo.	1			1 28				1 29						800
Golden Fleece	"	1					.28		.30		.28				
Gould & Curry	Nev.	3	.20				.10				.20		.20		
Hal & Norcross	"	3						.88							300
Homestake	S Dak	100	50 00				50 00		50.00		50.00		50.00		
Horn Silver	Utah	20	1 25				1 15		1 15		1.15		1 15		50
Iron Silver	Colo.	20	.72				.5		.72		.73		.52		
Isabella	"	1	1.38	1 27			1.27		1.27	1.26	1.26				1,050
Jack Pot	"	1													
Justice	"	1													
King & Pemb.	Ont.	10									.80				800
Lacrosse	Colo.	10	.14				.14		.14		.14				
Leadville	"	10					.06		.15		.15		.05		
Little Chief	"	1	.16				.16		.16		.15		.15	.16	100
Mexican	Nev.	3	.18				.19		.18		.18		.18		
Wolfe Gibson	Colo	5	.25		.27		.26				.27				2,000
Mt. Rosa	"	1						.26							
Ontario	Utah	100	7 13		6.88		6.80		6.50		6.25		6 25		170
Ophir	Nev.	3	.68				.70		.68		.6		.6		2 80
Pharmacist	Colo	1			.13½				.14	.13½	.14				4,000
Phoenix	Ariz.	1	.07		.09		.07		.06		.07		.09	.06	300
Plymouth	Cal.	10	.10				11		10		.10		.10		
Portland	Colo.	1	3.0				3 00		2 9		2 95		2.95		
Potosi	Nev.	3	.18				.18		.15		1		.14		
Quicksilver	Cal.	100	1 50				1.5		1 50		1 50		1.50		
do. pref	"	100	7.00				7 00		7 00		7.00		7.00		
Savage	Nev.	2½	.6				.16		.15		.16		.16		
Sierra Nevada	"	3	.28				.3		.29		.25		.24		
Smal Hopes	Colo	20	.45				.40		.45						
Standard Con	Cal	10	3.50				3.31		3 45		4.05		4 20	4.10	
Tenn Copper	Tenn	25	12.25	11.75	13.50	12.00	13 50	12.00	13.50	12.00	14 00	12 50	14 00	13.00	
Union Con	Nev.	2½	.17				.20		.17		.17		.17		200
Work	Colo	1	.33												
Yellow Jacket	Nev	3	1.				.10		.12		.14		.13		

COAL AND INDUSTRIAL STOCKS.

Am. Sm. & Ref.	.....	$100	38	36½	37	36¾	38⅝	36½	37⅜	37	37⅛	37⅜	36¾	....	32,700
" " " pf	.....	100	87½		72⅝	72⅝	88		88½	87½	88⅜	87⅝		....	1,722
Am.S & W Con	.....	100	34⅜	32⅝	33½	32¾	33¾	32¾	33¼	32½	33¼	32¾	33	....	27,475
" " pf'rn	.....	100	73¾	72¾	74⅜	74⅜	72		73¼	72½	73⅜	72		....	8 180
Am. Tin Plate	.....	100	21⅝	21⅛	21		20⅜		21⅜	21⅛	21⅜	21		....	2,055
" " " pf	.....	100	74	73			75	74¼			74¾			....	1.1.0
Col. Fuel & I	Colo..	100	33⅜	32½	32½	32	31⅜		33¼	32½	33⅜	33¼	33	....	4, 60
Col. & H C.&I	" "	100	14⅜								14	14¼			500
Federal Steel	.....	100	34¾	33	33½	32¾	33⅜	32¼	33⅜	32⅝	34¼	32½	33⅜	....	10,42
" " pf	.....	100	67		65¾		66	65½	67¼	66	67	66½	66¾	....	9,750
Fleming'n C &C	W.Va.	100	25	23	25	23	25	23	25	23	25	23	27	23	
Int'l Pump	.....	100	18¾	17¾	18¾	17¾	18¾	17¾	18¾	17¾	20	18¾	19¾	19	
National Lead	.....	100	21¾	20											800
" " pf	.....	100			98										10
National Salt	.....	100	39	37	39	37	38	36½	39½	38	42	35	40	39	100
" " pf	.....	100	66	64	65	64	67	63	67	65	69	68	67	65¾	150
Nat'l Tube	.....	100	46	45	46		46¼	46	46¼	46	46¼		46¾		4,836
Press. St. Car	Pa...	100	43¾		45¾		43¾	45¾	45¾	44	43¾	41	44½	....	2,100
" " " pf	"	100	76				74		75		75				350
Republic I & S	.....	100	11¾	11	11¾	11	11¾		12¾	11⅜	11⅝	11½		....	3,77
" " " pf	.....	100	55		58½	55	56	55	58½	55	57	56	55	....	2,749
Sloss-Shef.	.....	100					64								80
" " pf	.....	100					64								220
Stan. Oil of N J	.....	100	535	533	535	530	541	5 5	540	536	540	536	540	535	6
Tenn.C.,I.&R.R.	.....	100	69¾	65	68½		68¾	66½	69¾	67	69¾	68¾	69		11,685
" " " pf	.....	100													
Union Cop	.....	100	3	2¼	2⅜	2¼	2⅜	2¼	2⅜	2¼	2⅜	1¾			500
U.S. Cast I.P&F	.....	100	5	4¾	5	4¾	5	4½	5	4¾	5	4¾	5	4½	
" " " pf	.....	100	40	38	39¾	38½	40	38¾	40	38¾	41	39	39½	39	
Va Coal & C	.....	100	5½	4¾	5	4¾	5	4½	4	3	5½	4½			200

Total sales, 49,404.

PHILADELPHIA, PA.§

Name of Company.	Location.	Par Val.	July 5. H.	July 5. L.	July 6. H.	July 6. L.	July 7. H.	July 7. L.	July 9. H.	July 9. L.	July 10. H.	July 10. L.	July 11 H.	July 11 L.	Sales
Am. Alkali	.....	.....	...	.....	...	....	2.25	....	2.2	2.00	2.13	..	2.2	....	1,600
" " pf.	.....	.....	...	.....	...	....	...	....	...	....	...	....	...	....	
Bethlehem Iron	Pa.	.....	...	.....	...	....	...	....	...	....	57 00	....	58	....	123
Bethlehem S'l.	"	$50	15.00	.....	...	....	...	....	...	....	16 00	15.50	5 5	..	312
Cambria Iron	"	50	43.00	42 75	...	....	...	....	43 00	....	43 25	42 0	...	....	56
Cambria St'l.	"	50	6.18	15 50	15 88	15.75	16 18	16 00	16 13	....	16 5	15 50	16 50	16 25	4 790
Susq. I & S.	"	10	...	.....	...	....	...	....	2 50	....	2 5	..	2 5	....	9 5
United Gas I	"	50	118¾	.....	118¾	115	....	..	115¾	..	115	....	11 ¾	43¾	850

Total shares sold, 8,146. § Reported by Townsend, Whelen & Co., 309 Walnut St., Philadelphia

SAN FRANCISCO, CAL.

Name of Company.	Location.	Par value.	July 5*	July 6.	July 7.	July 9	July 10.	July 11
Belcher	Nev.	$3 00	....	....	....	.17	.16	.16
Best & Belcher	"	3 00	....	....	....	.23	.23	.23
Caledonia	"	3 00	....	....	....	1 05	1.00	1 00
Challenge Con	"	3 00	....	....	....	.16	.14	.14
Choliar	"	3 00	....	....	....	.18	.19	.19
Confidence	"	3 00	....	....	....	.75	.76	.75
Con. California & Virginia	"	2 50	....	....	....	1 50	1 50	1 50
Crown Point	"	3.00	....	....	....	.08	.08	08
Gould & Curry	"	3 00	....	....	....	.25	.24	.23
Hale & Norcross	"	3.00	....	....	....	.31	.29	.9
Justice	"	2 00	....	....	....	.07	.06	.07
Mexican	"	3 00	....	....	....	.19	.18	.18
Occidental Con	"	3.00	....	....	....	.19	.19	.19
Ophir	"	3 00	....	....	....	.68	.69	.70
Potosi	"	3.00	....	....	....	.18	.17	.15
Savage	"	2.50	....	....	....	.17	.18	.16
Sierra Nevada	"	3 00	....	....	....	.8	.27	27
Standard Con	Cal.	10.00	....	....	....	4 10	4.10	4.15
Union Con	Nev.	2.50	....	....	....	.20	.20	20
Utah Con	"	1.00	....	....	....	.12	.12	12
Yellow Jacket	"	3.00	....	....	....	.14	.14	.14

*Holiday.

CALIFORNIA OIL STOCKS.*

Name of Company.	No. of shares.	Par Val.	June 21. H.	June 21. L.	June 22. H.	June 22. L.	June 23 H.	June 23 L.	June 25 H.	June 25 L.	June 26. H.	June 26. L.	June 27. H.	June 27. L.	Sales
Blue Goose	5,000	$100	...	....	...	....	14.50	....	....	....	....	....	....	....	.....
Buckhorn	16,00	10.00	...	....	4.00	....	4.00	....	....	....	....	....	....	....	.....
Caribou	100,0	1 00													.....
Home	100,0	1 0	4.2	4 15	4.2	4 15	4 15	4 10	....	....	....	....	....	....	1,15
Homestake	10,000	.....	...	....	...	....	...	....	....	....	....	....	....	....	.....
National	100,000	5.00	6 10	....	6.10	....	6 10	....	....	....	....	....	....	....	.....
Petroleum	100,00	1 00	.5		5		.50		....	....	....	....	....	....	.....
San Joaquin	100,0	1 0	3.1	3 00	3 10	....	3 10	....	....	....	....	....	....	....	.....
Shamrock	100,00	2 50	81		60		.75		....	....	....	....	....	....	100
West Lake	200,000	1.00	.57	.55	.6	.5	.58	.58	....	....	....	....	....	....	.....
Yukon	100,0	2 50	.9	.70	1 00	.60	1.00	.65	....	....	....	....	....	....	.....

*California and Producers Oil Exchanges. Total sales 2,850 shares.

BOSTON, MASS.†

Name of Company.	Par val.	No. of shares	July 5. H.	July 5. L.	July 6 H.	July 6 L.	July 7 H.	July 7 L.	July 9. H.	July 9. L.	July 10 H.	July 10 L.	July 11. H.	July 11. L.	Sales
Adven'r'e,Cons	$25	100,000	2 50	2 00	....	....	2 75	....	2.13	2.00	....	....	....	....	280
Aetna, Cons. g	5	100 000	....	....	....	....	....	....	....	....	....	....	1.25	....	100
Alloues	25	80,000	....	....	....	....	....	....	....	....	....	....	....	....	
Amal Cop	100	750,000	85.63	85.50	86.00	..	86 00	85 75	86 00	....	86 00	85.50	86.00	....	452
Am. Z. L. & S.	25	60,000	....	....	....	....	9.00	....	....	....	....	....	....	....	10
Anaconda	25	1,20 0,00	....	....	....	....	....	....	....	....	....	....	....	....	
Arcadian, c.	25	150,000	9.00	....	20.00	19 00	....	....	20 00	19 50	20.75	20.13	21.00	20.00	855
Arnold, c	25	60,000	....	....	....	....	....	....	....	....	....	....	....	....	
Ashbed	25	40,000	....	....	....	....	....	....	....	....	....	....	....	....	
Atlantic, c	25	40,000	....	....	....	....	....	....	....	....	....	....	....	....	
Baltic c	25	100,000	19.00	....	....	....	....	....	18.25	18.00	....	....	18 00	17.75	270
Bingham, c. g.	10	190,000	....	....	....	....	....	....	....	....	....	....	.00	....	100
Bonanza, Dev.	10	300,000	....	....	....	....	....	....	.75	....	....	....	....	....	800
Boston q	10	100,000	....	....	....	....	....	....	....	....	....	....	....	....	
Boston & C C.	2	200,000	....	....	....	....	....	....	....	....	.04	....	.04	....	500
Bos.&Mon.Tr R	25	150,000	290	289½	290	....	293	....	295	293¾	296	295	299	297	312
British Col	5	200,000	10.50	....	11 00	10.38	....	....	10.50	....	0.00	....	....	....	390
Butte & Bost., c	10	200,000	64 00	62.00	64.0	....	....	....	....	....	....	....	64 00	63.00	250
Cal. & Hecla, c	25	100,000	720	....	....	....	....	....	725	....	730	728	7.3	....	69
Centennial, c.	25	300,000	....	....	....	....	6 00	....	....	....	....	....	17.00	16.75	250
Cent'l-Eureka	25	90,000	....	....	....	....	25.00	....	25.00	....	24 50	24.00	25.00	24.25	360
Central Oil	25	100,000	14 50	....	....	....	....	....	....	....	....	....	....	....	20
Cochiti, g	25	60,050	....	....	9.00	8 75	9 00	....	....	....	9.00	....	9.13	....	464
Cont Zn.Mg&Sm	10	157,000	....	....	2.38	2.00	....	....	....	....	....	....	....	....	150
Copper Range	10	110,000	....	....	5.00	14 50	....	....	....	....	....	....	15.00	....	180
Crescent, s	10	100,000	....	....	....	....	....	....	....	....	....	....	....	....	
Dominion Coal	25	100,000	29.5	....	29 25	28.75	....	....	....	....	29 00	....	29 88	29 00	639
do. pref	100	150,000	115	114¾	....	....	114¾	....	....	....	114¾	....	115	114¾	43
Elm River	100	20,000	....	....	....	....	....	....	....	....	....	....	....	....	
Federal Steel	12	100,000	34.0	31.50	34 25	33 50	....	....	....	....	34.0	33.00	33.75	33 50	2,150
do. pref	100	464,843	65 25	....	66 25	....	....	....	....	....	....	....	67.0	66.50	247
Franklin, c	100	332,610	13.25	....	12 50	....	13 0	12 75	....	....	....	....	....	....	436
I. Royal Con. c	25	100,000	25.00	24 75	25.00	....	25.0	....	....	....	24 50	24 0	25.5	25 00	830
Mass Con	25	100 000	6 25	....	....	....	....	....	....	....	....	....	6.00	....	40
Mayflower	25	10 ,000	....	....	1 25	....	....	....	....	....	....	....	1 00	....	50
Meiones	10	167.577	....	....	....	....	....	....	....	....	....	....	2 00	....	105
Merced, g	15	100,000	....	....	....	....	....	....	....	....	....	....	5.50	5.00	275
Michigan	25	100,000	....	....	....	....	3.50	....	....	....	....	....	....	....	50
Mohawk, c	25	100,000	12.00	....	11.75	....	....	....	....	....	2.00	*	6.00	12 00	170
Montana C & C	5	100,000	....	....	....	....	....	....	....	....	....	....	7.00	....	80
N. A G ld Dreg	10	100,000	....	....	....	....	....	....	....	....	2.00	....	....	....	10
Old Colony	25	100,000	....	....	....	....	....	....	....	....	....	....	....	....	
Old Dominion, c	25	150,000	....	....	18 00	....	18.00	....	....	....	18 00	....	19.00	18.00	675
Osceola, c	25	93,000	62.00	60.50	61 00	....	....	....	62 00	61.00	63.0	62 00	64.00	62 00	795
Parrot, s c	10	229,85	40.50	....	....	....	41 00	40.38	41.0	40.38	40.75	40.50	41.2	40.88	1,934
Pioneer	10	100,000	....	....	....	....	....	....	....	....	....	....	....	....	
Quincy, c	25	100,000	....	....	186	....	....	....	186	....	188	....	188	....	16
Rhode Island	25	100,000	3.25	3.00	3 38	3 25	....	....	....	....	....	....	....	....	75
Santa Fe, g. c	10	250,000	....	....	4 5.	....	....	....	....	....	4.50	....	....	....	300
San. Ysabel, g	5	130,000	....	....	....	....	....	....	....	....	....	....	83	....	70
Tamarack, c	25	60,000	....	....	....	....	....	....	....	....	181	180	190	187	81
Tecumseh	25	80, 00	....	....	....	....	....	....	....	....	....	....	....	....	
Tri Mountain	25	100,000	....	....	....	....	7 00	....	7.00	....	....	....	7.00	6.75	135
Union C L	25	80,000	....	....	....	....	....	....	....	....	....	....	....	....	
United States	25	200,000	....	....	....	....	....	....	....	....	....	....	....	....	
U. S. Oil	25	100,000	....	....	15 50	15 25	16.00	15 50	....	....	16.00	15.88	16.50	16 00	522
Utah Cons,g. c	5	3.0,000	26 13	26 00	26 50	26 00	25.50	....	....	....	....	....	27.00	26.00	430
Victor	5	200,000	....	....	....	....	....	....	....	....	....	....	....	....	
Victoria	25	100,0	....	....	2.00	....	....	....	....	....	....	....	....	....	270
Washington	25	60 0 0	....	....	....	....	....	....	....	....	....	....	....	....	
White Knob	100	50,000	....	....	....	....	....	....	....	....	....	....	....	....	
Winona, c	25	100,000	2.75	....	3 00	..	....	....	3.00	....	....	....	2 75	....	420
Wolverine, c	25	60,000	....	....	37.5	..	37.25	..	37 00	....	37.00	....	37.5	37 00	301
Wyandotte	25	100,000	....	....	....	....	....	....	....	....	....	....	1 00	....	75

†Official quotations Boston Stock Exchange. Total sales, 6,731. *Assessment paid.

SALT LAKE CITY, UTAH.

July 7.

Stocks.	Shares	Par val.	Bid.	Asked.	Stocks.	Shares.	Par val.	Bid.	Asked
Alta	300,000	$10	$0 43¾	$0.47	Horn Silver	400,000	$25	$1 10	$1.30
Albion	.....	....	.61	1.00	Joe Bowers	700,000	1	.04¾	.05¼
Alice	400,000	25	.31	.....	Joe Bowers Ext.	4 0,000	¼	....	.00¾
Anchor	.....	....	.35	1.00	Little Pittsburg	400,000	5	.00¾	.01
Bullion-Beck & Ch.	100,000	10	3.50	3 88	Lower Mammoth	150,000	1	50	.51
Centennial Eureka	200,00	25	22.75	....	Mammoth	400,000	5	2 12½	2.13½
Chloride Point	500,000	1	.05	.07½	May Day	400,000	¾	92	.92½
Daisy	500,00	3	.11¼	.01¾	Mercur	200,000	25	5.45	5.62½
Dalton	500,000	5	03¾	.04	Northern Light	400,000	5	06¾	.07
Dalton & Lark	2,500,000	1	.03	08	Ontario	150,000	100	6.50	7.50
Daly	150,000	20	1.23¾	1 40	Richmond-An	500,000	1	....	.....
Daly West	150,000	20	16.75	16 81¾	Sacramento	1,000,000	5	21¾	.23
Dexter	200,000	5	.65	.75	Silver King	150,000	20	45.00	53.00
Eagle	250,00	1	....	.....	Star Consolidat'd	500,000	1	.33	.37
Eagle & Blue Bell	250,000	1	.70	.93	Sunbeam	250,000	1	06	.14
Four Aces	250,000	1	.00¾	.03	Sunshine	250,000	10	.04¾	.....
Galena	100,000	10	.10	.20	Swansea	100,000	5	3 85	4.05
Geyser-Marion	300,000	5	05	06¾	South Swansea	150,000	1	1.13	1 17
Golden Eagle	400,00	1	.03¾	.0 ¾	Utah	100,000	1	49	.....
Grand Central	250,000	1	5 60	5 65	Valeo	200,000	10	36¼	.36¾

TORONTO, ONT.

Name of Company.	Par val.	June 23 B.	June 23 A.	June 25. B.	June 25. A.	June 26. B.	June 26. A.	June 27. B.	June 27. A.	June 28. B.	June 28. A.	June 29. B.	June 29. A	Sales
Ontario:														
Golden Star	1	.14¼	.14¾	14½	.15	.13½	.14	.12¾	14	.....	....	.12¾		32 600
Ham Reef	1	.09¾	.09¾	.08¾	09	09¾	09¼	09¼	.09¼	..	....	.09¾	09¾	17,500
Olive	1	.16	.18	.15	.15¾	16¾	.18	.16	.15¾	.....	....	.16	.18	.....
British Col.:														
Athabaska	1	.19¼	.19¾	.21¾	.2¾	.24¾	.25¾	.25	.27	.....	....	.23¾	.2	11,800
Big Three	1	.01¾	.13	.01½	.02¾	01¾	.02¾	.01½	.03¾	.....	....	.01¾	.2¼	
Black Tail	1	.15	.18	.16	.17	.13	.16¾	.10	.16¾	.....	....	.15	.16	1,000
Cariboo M'K	1	8	.87	82	.88	.80	.92	80	.88	.....	....	.80	.87	
Crow's N C	25	36.00	39.00	35 00	39.00	35 00	39 00	36 00	9 00	.....	....	37 50	38 50	1,000
Deer Trail	1	.04¾	.15¾	.04¾	05	05	.05¾	05	.05¾	.....	....	....	....	32,000
Evening Star	1	.07	.19¾	.18	09	.16	.09	.17	.09	.....	....	.07	.08	2,100
Fairview	1	04¾	05¾	14¾	.04¾	04¾	04¾	04¾	04¾	.....	....	04¾	.05¾	2,000
Iron Mask	1	.2	35	.20	.3	.20	.33	22	.32	.....	....	25	.35	
Jim Blaine	1	.2¾	15	.12½	.15	11	.13½	11	.5	.....	....	12	.14	
Knob Hill	1	45	.50	.42	.50	.41	.43	.35	42	.....	....	.33	39	
Mi nehaha	1									.....	....	0.3		1,000
Mont Cristo	1	.03	04¾	.03¾	.04	.03¾	.04	.03¾	04¾	.....	....	.03¾	04¾	
Mont &Lon.	0 24	.25	.28	25	26	.24¾	.25	2.¾	.25¾	.....	....	26	28¾	500
N S llie on	1									.....	....			
North Star	1	.95	1 03	.9	.03	90	1 02	.91	1 04	.....	....	.97	1 03	
Payne	1	97	1 02	95	1 00	.9 ¾	.01	.96¼	1 03	.....	....	96	1.02	
Princess M.	1	.03	.04	02	.05	03	04	.03¾	04	.....	....	03¾	.05	5,500
Rambler	1	2.¾	.23	21	22	21¾	.23¾	21	.23	.....	....	21	.33	1,000
Rathmullen	1							.03		.....	....	03		
Republic	1	.85	.93	88	.93	.86	.89	.86	95	.....	....	88	.94	
Van Anda	1	02	.03¾	02¾	.03	02¾	03	02¾	.02¾	.....	....	02¾	.8	
Virtue	1	61	.65	.58	.6	60	65	.56	70	.....	....	.60	64¾	500
War Eagle	1	1.42	1. 0	1 42	1.50	1.44	1 50	1 45	1.48	.....	....	1.46	1.48	
Waterloo	0.10	.03	.04	03	.03¾	.03	.04	03	.04	.....	....	.03	04	
White Bear	1									.....	....			
Winnipeg	1	.14¾	.15¾	.13¾	.15	.13	.18¾	.13¾	.14¾	.....	....	.11¾	.14¾	
Develop Co														
B C G Field	1													
Can. G F S	0 1	.06¾	.07¾	.06¾	07	.06¾	07	.06¾	.07	.....	....	.06	.06¾	2 850
Gold Hills														

*Ex-dividend

SPOKANE, WASH.*

Name of Company.	Par val.	Week, July 5. B.	Week, July 5. A.	Week, July 5. Sales.	Name of Company.	Par val.	Week, July 5 B.	Week, July 5 A.	Week, July 5 Sales.
Butte & Boston	...	.02	.03¾	.....	Morning Glory	0.10	.03¾	.03¾	44,000
Conjecture	.....	.03		.....	Morrison	....	.0 ¾	.03	.....
Crystal	.....	.04	.07	.....	Mountain Lion	...	.65	.85	.....
Deer Trail No.

STOCK QUOTATIONS.

COLORADO SPRINGS, COLO.‡

NAME OF COMPANY.	Par val	July 2 B.	July 2 A.	July 3 B.	July 3 A.	July 4 * B.	July 4 * A.	July 5. B.	July 5. A.	July 6. B.	July 6. A.	July 7. B.	July 7. A.	Sales.
Acacia	$1	.84½	.84¾	.86⅝	.86¼					.87½	.88	.87½	.88	79,000
Alamo	1	.15	.15⅜	.14½	.15⅜					.14½	.15⅜	.14½	.15⅜	
Am. Con	1	.05¾	.06	.05⅝	.06					.05⅝	.06	.06⅜	.06½	5,000
Anaconda	1	34	.40	.34¾								.35		1,525
Anchor	1	.01½		.02⅞	.03½					.02½	.03	.02⅝	.03⅛	
AnchoriaL	1	.83		.80						.80		.80		
Antelope	1	.02½	.03½	.02¾	.03½					.02¾	.03	.02⅝	.03⅛	7,000
Aola	1		.06	.05½	.06					.05¾	.06	.06	.06½	8,000
Arcadian	1		.05	.04	.05					.04¼	.05	.04⅜	.05	6,000
Arg'ntum J	1	.19	.20	.19	.20½									
Banner	1	.04	.04⅜	.04¾	.04⅝					.05	.05	.04⅞	.05	500
Battle Mt.C.	1	.28½	.28¾	.28¼	.28¾					.28	.29	.28	.30	15,000
Ben Hur	1	.07	.07½	.07	.07⅜					.07		.07		4,000
Black Bell	1		.11½		.11⅜					.10⅜	.11¼	.11	.11⅜	
Blue Bell	1	.10½	.11	.10⅜	.11⅛					.10½	.11⅛		.10⅜	
Bob Lee	1	.05⅜	.05⅝	.05⅝	.05⅜					.05¼	.05⅝	.05½	.05⅝	7 000
Buckhorn	1	.05½	.06½	.05¾	.06¾					.06	.06¾			3,000
Cadillac	1	.02¼	.02½	.02⅝	.02½					.02¾	.02½	.02	.02⅝	4,000
Central C'n	1	.07¼	.08¼	.08¼	.08¼					.09½	.09⅜	.09		47,000
Champion	1	.07⅜	.07⅜	.07⅜	.07⅜					.07⅜		.07⅜		3,000
Chicolo	1	.02¾	.03½	.02¾	.03					.02¾	.03	.02⅞		
C.K.&N	1	.02⅜	.02⅝	.02⅝	.02¾					.02⅝	.02⅝	.02⅝	.02⅝	11,000
C.C.Col'bia	1	.08	.08⅜	.08⅛	.08⅜					.08	.08⅛	.08	.08¼	9,000
C.C G Ext	1	.10¼	.11¼	.10¼	.10⅜					.10⅜	.10⅞	.10¼	.10¼	14.281
C.C. & Man.	1	.10½	.10¾	.10	.10¾					.10	.10¼	.10¼	.10⅜	8 250
Copper Mt.	1	.04⅜	.04¾		.04⅜					.04¼	.04⅝	.04½	.04¾	15,000
Creede&CC	1	.14½	.15	.14⅜						.14½	.15	.14¾		3,500
C. C. Con.	1	.13¼	.14	.14⅜	.14					.13¾	.13⅝	.13⅜	.14	4,000
Dante	1	.13	.13½	.13	.13⅝					.13	.13¼	.13	.13⅜	1,000
Des Moines	1		.07		.07					.06¾		.07		
Eclipse	1	.09		.09	.09¼					.09	.09⅛	.08¾	.09⅛	11,000
ElktonCon	1	1.28⅝	1.29	1.29¼	1.29⅜					1 29¼	1 30	1.29⅜	1.30	9,603
El Paso G.	1	.39¾	.40½	.39⅜	.40⅜					.40	.40½	.40	.41	11,000
Enterprise	1	2.0½	.21	.20¼	.21					.20		.21		500
F.Rawlings	1				.29					.25	.29	.25¼	.25¾	9,000
Favorite	1													
Findley	1	.14⅜	.15		.15					.09	.09½	.08¾	.09½	11,000
Garf. Con	1		.15		.17						.16		.16	
Golden Fl	1		.40		.40									
Gold Hill	1	.03⅝	.03½	.03⅜	.03¼					.03½	.03⅝	.04	.04¼	99,000
Gold.Sov'n.	1	.10	.10⅜	.10	.10⅜					.10	.10¼	.10¼	.10⅜	16,000
Hayden	1	.01¾	.02	.01¾	.02					.01¾	.02	.01¾	.02	
Ida May	1	.31	.34½	.32	.32¼					.32	.32½	.32	.32½	9,500
Indep'ndce	1	.45½	.46	.47	.48					.48¾	.49½	.45¾	.48	11,000
Ing. Con	½			.20¾	.21					.20¾	.22		.22	7,500
Isabella	1	1.25⅜	1.26	1.26	1.26½					1 24¼	1 25	1.24¼	1.25	8,500
Jack Pot	1		.56	.52	.59					.50	.57		57¾	
Josephine	1	.02¼	.0.⅜	.02¼	.02½					.02⅜	.02¼	.02½	.02⅝	5,000
Key West	1			.03½	.03⅝					.03¼	.03¼	.02⅝	.02¾	1,000
Lexington	1	.16¾	.16¾	.16¾						.16¼	.17¼	.17	.17¾	8,500
Magnet R	1	.03⅜	.03⅜	.03½	.03¾					.03¼	.04¼	.04¼	.04¾	11,000
Margaret	1	.02⅝	.02¾	.02¾	.02¾							.02⅝	.02¾	4,000
Margery	1			.04¾	.04¾									
Matoa	1	.37½	.37¾	.37	.37⅜					.37	.37½	.36¾	.37¾	22,500
Midway	1	.06¼	.06⅜	.06¼	.06⅝					.06¼	.06¾	.06⅝	.06⅞	3,000
M. J T	1	.04	.04¼	.04	.04¼					.04	.04¼	.04	.04¼	5,000
Mobile	1	.03¼	.03⅝	.03¼	.03⅜					.03	.03¼	.03	.03⅜	7,000
Moll.Dwyer	1	.06⅜	.06¾	.06⅜	.06¾					.07¼		.06¾		129,000
Mollie Gib.	1	.22¼	.24							.23½	.24	.22½	.24	1,500
Monarch	1	.08¾	.09¼	.08¾	.09¾					.08¼	.09¼	.08¾	.09¾	3,000
Montreal	1	.08¼		.08¼	.09					.08	.08¼	.08		
Moon-A'c'r	1	.58	.60	.57						.58	.58¾	.57		1,500
Morning S	1	.03½	.03¼	.03¾						.03¼		.03¾		
Mtn.Beauty	1	.09¾	.09¾	.09¾	.10					.09¾	.09¾	.09¾	.09¾	4,000
Mt. Rosa	1		.75		.75					.75				
National	1	.14¾	.14¾	.14¾	.14¾					.14¼	.14¾	.13¾	.13¾	438,000
Nellie V	1	.12¾	.13¼	.12¼	.12¾					.12¼	.12¼	.12¼	.12¾	
New Haven	1	.08¾	.08¼	.08¾	.08¼					.08¾	.08¼	.08¼	.08¾	10 000
OliveB'uch.	1	.06	.06¾	.05¼	.06					.05¾	.06	.06	.06¼	1,000
Oriole	1	.05	.05¼	.05¼	.05¼					.05¼	.05¾	.06	.06¼	15,000
Orphan	1	.18½		18						.19				2,000
Pelican	1	.02¾		.02¾	.02¾					.03		.03		1,000
Pharmacist	1	.12¼	.12¾	.12	.12¼					.12½	.12¾	.12¾	.12¾	16,000
Pilgrim	1	.13	.13¼	.13	.13¼					.13	.13¼	.14¾	.13¾	8,000
Pinnacle	1	.18¼	.20	.19¼	.20					.19½	.20	.20	.21	2,000
Portland	1	3.05	3.10	3.06	3 09½					3.10	3.15	3.05	3 15	700
Prince Alb.	1	.04½	.04¾	.04¼	.04¾					.04¾	.04¾	.04¾	.04¾	3,000
Princess	1	.05¾	.06¼	.05¾	.06¾					.05¾	.06¾	.06¾	.06¾	1,000
Progress	1	.06	.06¼	.06	.06¼					.06	.06¼	.06	.06¼	7,091
Pythias	1	.05¾	.05¾	.05¼	.05¾					.06	.06¼	.05¾	.06¼	4,000
Raven	1													
Republic	1	.06	.06¾	.06	.06¼					.06¼	.06¾			7,000
Rob'tBurns	1	.04¾	.04¾	.04¾	.04¾					.04¾	.04¾	.04¾	.04¾	1,000
Rose Maud	1	.10	.10½	10	.10¼					.09	.10	.09½	.10	4,000
Rose Nicol	1	.12¼	.13¼		.12¾					.13	.13¼	.13¼	.13¼	3,000
Silver Gold	1			.01¾	.01¾					.01¾	.01¾	.01¼	.01¾	31,000
Specimen	1													
Tornado	1													
Touraine	1													
Trachyte	1	.06¾		.06¾						.06¾	.06¾	.06¾	.07	
Uncle Sam	1	.04½	.04¾	.04¼	.04¼					.04¼	.04¾	.04¼	.04¾	3,000
Union	1	.40½	.42							.40		.41		
Vindicator	1			1.48	1 45		1 47½			1.49	1 50	1.45	1.53	
Work	1	.30¼	.30¾	.30¼	.30¾					.30¼	.30¼	.30¼	.30¼	12,900
Zenobia	1	.15¼	.15¼	.15½	.15⅞					.15	.15¾	.15½	.15¾	

Colorado Springs Mining Stock Exchange. Total sales, 1,214 839 shares. * Holiday.

MONTREAL CANADA.*

NAME OF COMPANY.	Par Val	Week, July 9. H.	L.	Sales.	NAME OF COMPANY.	Par Val	Week, July 9. H.	L.	Sales.
Big Three	$1	.02¾	.02	1,500	Monte Christo	$1	.04¼	.03¾	
California	1	.10	07	4,500	Montreal G. F.	1	.05	.03	
Can. Gold Fields	0.10	.06¾	05¼	1,000	Montreal-London	0.24	.26	.24½	4,000
Decca	1	.05	.02		Oregon	1	.19¾	.16	11,500
Deer Trail Con	1	.06	.05		Payne	1	1.00	92	
Giant	1				Rambler-Cariboo	1	.27	47	
Golden Star	1	.15	.08¾	12,500	Republic Con	1	95	.87	1,000
Gold Hills Dev	1	.03¾	.02		Slocan-Sovereign	1	.25	.19	1,000
Knob Hill	1	.37½	3 .3(	2,500	Virtue	1	.69¾	.57½	2,500
Majestic	1				War Eagle	1	1.50	1.40	

*Montreal Stock Exchange. Total sales, 42,000 shares.

MEXICO.

June 30.

NAME OF COMPANY.	No. of shares.	Last div'd.	Prices. Op'g.	Cl'g.
Durango:				
Barradon y Cab	2,400		$40	$30
Candelaria de Pan.	1,200		20	20
Capuzaya Guan	2,400		15	12
Restauradora	10,000		10	20
Guanajuato:				
Angustias	2,400	5.00	155	180
Cinco Senores y An	2,000	15.00	34	330
Guadalupe Hacie'a	10,000	2.00	205	200
Trinidad, aviadora	2,000		15	6
do. aviada	400		15	10
Zona Minera de Pos	2,400		6	8
Hidalgo:				
Amistad y Concord.	9,600	1.47	18	19
Arevalo	720		200	200
Bartolome de Med.	2,000	2.00	65	70
Carmen	1,100	7.75	250	200
Luz Ca Maravillas	800		100	100
Pabellon	800	27.89	30	20
Hidalgo:				
Real del Monte	2,354	10.00	550	600
San Francisco Ho	6,000	3.00	145	100
Soledad	960	5.00	270	230
Sorpresa	960	7.50	290	280
Union Hacienda	2,000	5.00	240	230
Mexico:				
Coronas	500		75	75
Esperanza y An	3,000	10.00	1 250	1,280
Michoacan:				
Luz de Borda ava	4,000		15	12
S. Luis Potosi:				
Concep. y An	2,400		260	275
Zacatecas:				
Asturiana y An	2,500	10.00	170	175
Cabeson	2,400		15	15
C'delar. de Pinos	2,500		240	270
Palma de Somb	2,400		50	40

DENVER, COLO.‡

NAME OF COMPANY.	Par val.	July 2. B.	July 2. A.	July 3. B.	July 3. A.	July 4. B.	July 4. A.	July 5. B.	July 5. A.	July 6. B.	July 6. A.	July 7 B.	July 7 A.	Sales.
Alamo	1											.14½	.15	3,000
Anaconda	5	.39			.39							.35	.36	1,900
Aola	1													
Arg. J	1	.18	.20		.20½									
C. K & N	1	.02⅝	.02⅝	.02⅝	.02⅝							.02⅝	.02⅝	11,000
Dictator	1	.03½	.03¾	.03	.03¼							.02⅝	.03⅛	4,000
Elkton	1			1 29	1.29½									2,000
Findley	1													
Gold Sov'n.	1	.10	.10½											6,000
Golden Age	1													
Indep n'ce	1													
Iron Clad	1	.05¾	.06½	.06	.06½							.05¼	.06	2,000
Isabella	1			1.25½	1.26½									
Magnet R'k	1	.03½	.03⅝	.03½	.03¾							.04½	.04⅝	5,000
National	1													
New Haven	1	.08¼	.08¾	.08¼	.08¾									2,000
New Zeal'd	1	.63	.68	.52	.68							.58¾		
Old Gold	1	.02											.02	
Omega	1											.005¾		
Ophir	1			.59	.60¾									1,000
Puritan	1	.01¾	.01⅝	.0.⅝	.01¾							.01⅜		
Union	1													
Vindicator	1				.01¾							.01¼	.01¾	5,000
Wh.of Fort	1													

‡ Official Quotations Denver Stock Exchange Total sales, 42,900 shares.

PARIS.

June 21.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Op'ning.	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs.	27,000,000	2,000	75.00	1,890.00	1,880.00
" " Firminy	"	"	3,000,000	500	125.00	3,500.00	3,500.00
" " Five-Lille	"	" "	12,000,000	500	35.00	528 00	525.00
" " Huta-Bank	Russia	Iron & steel		500		4,580.00	4,470.00
" " la Marine	France	Steel mfrs.	20,000,000	500	50.00	1,685 00	1,650.00
Anzin	"	Coal			220.00	6,800.00	6,650.00
Boleo	Lower Cal.	Copper		500	176.00	2,740.00	2,740.00
Briansk	Russia	Coal & Iron		500		1,000.00	975.00
Champ d'Or	S. Africa	Gold	3,375,000	25	3.75	40.50	38.25
Courrieres	France	Coal	600,000	500	70.00	2,870.00	2,899.00
Dombrowa	Russia	Coal		500	12.50	990.00	990.00
Donets	"	Steel				930.00	910.00
Dynamite Centrale	France	Explosives		500	20.00	435.00	434.00
Escombrera-Bleyberg	Spain	Lead		500	35.00	1,280.00	1,268.00
Fraser River	Brit. Col'mb	Gold	250,000	25		9.50	9.25
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	147.50	137.50
Laurium	Greece	Zinc & lead	16,300,000	500	30.00	585.00	581.00
Malfidano	Italy	Zinc	12,500,000	500	50.00	1,210.00	1,200.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	30.00	490.00	480.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	1,195.00	1,176.00
Napthe Baku	Russia	Petroleum				835 00	826.00
Napthe, Le	"	"				1,300.00	1,300.00
Napthe Nobel	"	"				695.00	687.50
" " parts	"	"				13,900.00	13,750.00
Nickel	N.Caled'nia	Nickel	10.000.000	250	10.00	470.50	470.00
Penarroya	Spain	Coal, etc		500	95.00	2,760 00	2,700.00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25		3 75	3.75
Salines de l'Est	France	Salt		500	6.50	265.00	269.00
Salines du Midi	France	" etc		500	25.00	1,045.00	950.00
Vielle Montagne	Belgium	Zinc	9,000,000	80	36.00	750.00	725.00

LONDON.

June 29.

NAME OF COMPANY.	Country.	Authorised capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
			£ s. d.	s.d.		£ s. d.	£ s. d
Alaska Goldfields	Alaska	£300,000	1 0 0	2 1	Mar., 1899	15 0	17 6
Alaska-Mexican, g	"	200,000	1 0 0	0 4.8	May, 1900	17 6	1 0 0
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	" "	5 1 3	5 3 9
Anaconda, c., s	Montana	6,000,000	5 0 0	8 2	Apr., 1900	8 7 6	8 12 6
De Lamar, g., s	Idaho	400,000	1 0 0	6	May, 1900	3 0	4 0
Golden Gate, g	California	80,000	1 0 0			1 0	2 0
Grand Central, g., s	Mexico	300,000	1 0 0	2 0	Jan., 1900	15 0	17 6
Hall Mines, c., s	British Col	300,000	1 0 0	1 0	May, 1899	1 0	1 2 6
Le Roi, g	" "	1,000,000	5 0 0	5 0	Nov., 1899	6 7 6	6 10 0
Lillie, g	Colorado	250,000	1 0 0	2½	Apr., 1900	7 6	12 6
Montana, g., s	Montana	660,000	1 0 0	6	Apr., 1899	3 0	4 0
Mountain Copper	California	1,250,000	5 0 0	11 0	Apr., 1900	5 7 6	5 12 6
Newfoundland, c	Newfoundland	250,000	1 0 0			2 6	7 6
Palmarejo & Mexican, g	Mexico	700,000	1 0 0			1 0	1 6
*Stratton's Independence	Colorado	1,100,000	1 0 0	2 0	June, 1900	2 12 6	2 15 0
Copiapo, c	Chile	200,000	2 0 0	4 0	July, 1900	3 17 6	4 2 6
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Oct., 1899	1 10 0	1 12 6
*St. John del Rey, g	Brazil	80,000	1 0 0	1 6	June, 1900	1 7 6	1 10 0
UtahCon.,g(High'ndBoy	Utah	300,000	1 0 0	rts.	Mar., 1898	4 15 0	5 5 0
Velvet, g	BritishCol'mbia	100,000	1 0 0			1 0 0	1 2 6
Ymir, g	"	200,000	1 0 0	1 0	Nov., 1899	1 8 9	1 11 3
British Am. Corp	"	1,500,000	1 0 0	2 0	Mar., 1900	14 0	14 6
Linares, l	Spain	45,000	3 0 0	15 0	Mar., 1900	9 0 0	10 0 0
Mason & Barry, c., sul	Portugal	420,000	2 0 0	10 0	May, 1900	3 15 0	4 0 0
Rio Tinto, c	Spain	1,625,000	5 0 0	45 0	May, 1900	52 2 6	52 7 6
" " pref	"	1,625,000	5 0 0	2 6	" 1900	6 2 6	6 5 0
Tharsis, c	"	1,250,000	2 0 0	15 0	Apr., 1900	7 17 6	8 2 6
Assoc. Gold Mines	W. Australia	500,000	1 0 0	1 6	Jan., 1900	3 7 6	3 10 0
Broken Hill Prop., s	N.S.Wales	384,000	8 0	1 0	Apr., 1900	2 8 6	2 9 6
Great Boulder Prop	W. Australia	175,000	2 0	6	Apr., 1900	1 12 0	1 13 0
Hannan's Brownhill, g	"	140,000	1 0 0	7 6	May, 1900	8 5 0	8 10 0
Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	July, 1900	10 10 0	10 12 6
Kalgurlie, g	"	120,000	1 0 0	rts	Oct., 1899	6 2 6	6 7 6
Lake View Consols, g	"	250,000	1 0 0	5 0	Aug., 1900	13 18 9	14 1 3
Mt. Lyell M. & R., L, c	Tasmania	900,000	3 0 0	5 0	July, 1900	7 17 6	8 2 6
Mt. Morgan, g	Queensland	1,000,000	1 0 0	7	June, 1900	4 16 3	4 18 9
Waihi, g	New Zealand	320,000	1 0 0	2 6	June, 1900	9 17 6	10 0 0
Champion Reef, g	Colar Fields	220,000	10 0	4 0	May, 1900	5 15 0	5 17 6
Mysore Gold, g	"	250,000	10 0	4 0	July, 1900	6 5 0	6 7 6
Nundydroog, g	"	242,000	1 0	2 0	July, 1900	3 5 0	3 7 6
Ooregum, g	"	145,000	1 0	3 6	Aug., 1900	3 15 0	3 17 6
" pref. g	"	120,000	1 0	3 6	" 1900	4 15 0	5 0 0
British S. Af., chartered	So. Africa	5,000,000	1 0 0	rts.	May, 1899	3 6 3	3 7 6
Cape Copper, c	"	600,000	1 0 0	5 0	July, 1900	5 18 9	5 16 3
" pref	"	150,000	2 0 0	5 0	" 1900	5 5 0	5 10 0
City & Suburban (New), g	Transvaal	1,360,000	4 0 0	8 0	Aug., 1899	5 12 6	5 17 6
Con. Deep Level, g	"	200,000	1 0 0	x all	June, 1898	1 5 0	1 10 0
Crown Reef, g	"	120,000	1 0 0	18 0	Nov., 1899	15 10 0	15 15 0
De Beers Con., d	Cape Colony	3,950,000	5 0 0	£1	Sept., 1899	26 12 6	26 17 6
Ferreira, g	Transvaal	90,000	1 0 0	80 0	Aug., 1899	21 0 0	22 0 0
Geldenhuis Deep, g	"	350,000	1 0 0	8 0	Aug., 1899	9 15 0	10 5 0
Geldenhuis Est., g	"	200,000	1 0 0	10 0	Aug., 1899	6 7 6	6 12 6
Henry Nourse, g	"	125,000	1 0 0	10 0	Aug., 1899	6 7 6	8 12 6
Jagersfontein, d	Orange Fr. St.	1,000,000	5 0 0	6 0	Apr., 1900	16 0 0	16 10 0
Johannesburg Con.Invst.	So. Africa	2,750,000	1 0 0	2 0	Nov., 1899	2 1 3	2 3 9
Jubilee, g	Transvaal	50,000	1 0 0	5 0	Aug, 1899	6 0 0	6 10 0
Langlaagte Estate, g	"	470,000	1 0 0	3 0	Sept., 1899	3 2 6	3 7 6
May Con., g	"	290,000	1 0 0	6 0	Aug., 1899	4 10 0	4 12 6
Meyer & Charlton, g	"	100,000	1 0 0	8 0	July, 1899	5 0 0	5 5 0
Namaqua, c	Cape Colony	200,000	2 0 0	12 0	June, 1899	4 8 9	4 11 3
Primrose (New), g	Transvaal	300,000	1 0 0	6 0	Aug., 1899	3 18 9	4 1 3
Rand Mines, g	So. Africa	490,000	1 0 0	15 0	Aug., 1899	40 12 6	40 17 6
Robinson, g	Transvaal	2,750,000	5 0 0	8 0	Aug., 1899	8 12 6	8 17 6
Sheba, g	"	1,100,000	1 0 0	0 6	July, 1899	1 2 6	1 5 0
Sim. & Jack Prop., g	"	5,000,000	5 0 0	4 0	July, 1899	6 3 9	6 6 3
Wolhuter, g	"	860,000	4 0 0	2 0	Feb., 1899	4 10 0	4 15 0

*Ex-dividend.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Author-ized Capital Stock.	Shares Issu'd No.	Par Val	Dividends. Paid, 1900.	Total to Date.	Latest. Date.	Amt.
1	Acacia, g.	Colo..	$1,500,000	1,500,000	1	$15,000	$15,000	June.. 1900	.01
2	Etna Con., q.	Cal ..	500,000	100,000	$5	30,000	225,000	April 1900	.15
3	Alabama Coal & Iron, pf	Ala...	2,500,000	25,000	100	87,500	87,500	May.. 1900	1.75
4	Alaska-Mexican, g.	Alask	1,000,000	180,000	5	36,000	465,031	April. 1900	.10
5	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	150,000	4,370,000	April. 1900	.37½
6	Alice, g. s.	Mont.	10,000,000	400,000	25	.....	1,075,000	April. 1898	.05
7	Alliance, g.	Colo..	500,000	450,000	1	.....	31,500	Dec.. 1899	.07
8	Amalgamated, c.	Mont.	75,000,000	750,000	100	4,500,000	6,000,000	July.. 1900	2.00
9	Amanda, g.	Colo..	1,000,000	1,000,000	1	10,000	10,000	June. 1900	.01
10	Amazon, g.	Colo..	600,000	600,000	1	102,000	121,882	May.. 1900	.10
11	American Coal.	Md..	1,500,000	60,000	25	195,000	922,000	June. 1900	2.00
12	American Gold, g. s. c. l.	Colo..	3,000,000	300,000	10	.....	446,000	Dec.. 1899	.04
13	Amer. Sm. & Ref., pref.	U. S..	32,500,000	325,000	100	1,832,650	2,401,425	July.. 1900	1.75
14	Am. Steel & Wire, pf.	U. S..	40,000,000	400,000	100	2,100,000	4,900,000	July.. 1900	1.75
15	Am. Steel & Wire, com.	U. S..	50,000,000	500,000	100	1,750,000	1,750,000	July.. 1900	1.75
16	Am. Zinc, Lead & Sm.	Mo...	2,500,000	60,000	25	60,000	180,000	Jan.. 1900	1.00
17	Anaconda Copper.	Mont.	30,000,000	1,200,000	25	2,400,000	14,550,000	April. 1900	2.00
18	Anchoria-Leland, g.	Colo..	600,000	600,000	1	.....	198,000	April. 1899	.03
19	Anglo-Mexican, g.	Mex..	2,001,625	400,230	5	.....	1,825,048	Dec.. 1899	.24
20	Apollo Con., g.	Alask	1,000,000	100,000	10	70,000	210,000	Jan.. 1900	.07
21	Appie Ellen, g.	Colo.	600,000	600,000	1	.....	25,000	Aug.. 1898	.01
22	April Fool, g.	Nev..	500,000	500,000	1	.....	16,000	Oct... 1899	.01
23	Argentum-Juniata, g.	Colo..	1,300,000	650,000	2	.....	156,000	Oct... 1895	.03
24	Argonaut, g.	Cal ..	2,000,000	200,000	10	70,000	490,000	May.. 1900	.05
25	Arizona Copper	Ariz..	3,190,550	.....	....	443,486	1,331,905	May.. 1900	.70
26	Associated, g.	Colo..	1,250,000	1,250,000	1	.....	84,000	Feb.. 1899	.01
27	Atlantic, c.	Mich.	1,000,000	40,000	25	80,000	860,000	Feb.. 1900	2.00
28	Bald Butte, g. s.	Mont.	250,000	250,000	1	.....	769,648	Dec.. 1899	.03
29	Bankok Cora Belle, s.	Colo..	600,000	600,000	1	.....	107,510	July.. 1896	.01
30	Battle Mtn. Con., g.	Colo..	2,500,000	2,500,000	1	.....	.....	.....	.....
31	Big Seven, g.	Cal ..	100,000	100,000	1	.....	6,000	April 1898	.03
32	Big Six, g. s.	Colo..	500,000	500,000	1	.....	15,000	May.. 1898	.00½
33	Boston-Aurora, pref.	Mo...	800,000	32,000	25	37,120	66,160	May.. 1900	.50
34	Boston & California.	Cal ..	600,000	600,000	1	.....	72,000	June. 1899	.06
35	Boston & Colo. Smelting	Colo..	750,000	15,000	50	33,750	303,750	July.. 1900	.75
36	Boston Duenweg, z.	Mo...	1,000,000	40,000	10	24,000	56,000	June.. 1900	.10
37	Boston Get There, z.	Mo...	250,000	22,500	10	9,000	20,250	April. 1900	.10
38	Boston-Little Circle, z.	Mo-K.	1,000,000	100,000	10	12,500	87,500	Mar.. 1900	.12½
39	Boston & Mont. Con.	Mont.	3,750,000	150,000	25	2,700,000	17,200,000	May.. 1900	10.00
40	Boston Providence, z., pf	Mo...	150,000	15,000	10	4,500	15,742	June. 1900	.05
41	Boston, q.	Cal..	1,000,000	100,000	10	10,000	20,000	Jan.. 1900	.10
42	Boston Springfield, z.	Mo...	500,000	20,000	25	15,000	15,000	June. 1900	.25
43	Boston Sunflower, z.	Mo...	150,000	15,000	10	.....	4,500	Oct... 1899	.30
44	Breece, i.	Colo..	5,000,000	200,000	25	10,000	80,000	Feb.. 1900	.05
45	Buffalo Hump, g.	Idaho	3,000,000	300,000	10	155,000	155,000	July.. 1900	.10
46	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10	60,000	2,498,000	June. 1900	.10
47	Bunker Hill & Sullivan.	Idaho	3,000,000	300,000	10	147,000	948,090	July.. 1900	.07
48	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25	3,000,000	69,850,000	June.. 1900	10.00
49	Cambria Steel.	Pa...	16,000,000	320,000	50	230,000	1,440,000	May.. 1900	.50
50	Cariboo-McKinney, g.	B.Col	800,000	800,000	1	.....	311,965	June. 1899	.01½
51	Centen l-Eureka, g.s.l.c.	Utah.	5,000,000	100,000	25	117,700	2,267,700	April. 1900	1.00
52	Center Creek, l. z.	Mo....	1,000,000	100,000	10	10,000	10,000	Feb.. 1900	.10
53	Central Lead, l.	Mo...	1,000,000	10,000	100	30,000	172,000	June. 1900	.50
54	Champion, g. s.	Cal..	340,000	34,000	10	.....	321,700	Nov . 1899	.25
55	Charleston, p. r.	S. C..	1,000,000	10,000	100	.....	200,000	June. 1899	2.00
56	Cloverdale, z.	Mo...	1,000,000	100,000	10	50,000	50,000	July.. 1900	.20
57	Colonial, l.	Mo...	1,000,000	1,000,000	1	.....	10,000	Aug.. 1899	.01
58	Colorado Smelting	Mont.	1,000,000	100,000	10	.....	1,945,000	Jan.. 1899	1.00
59	Columbia, l.	Mo...	500,000	48,500	10	14,550	14,550	June. 1900	.10
60	Commodore, g.	Colo..	1,200,000	1,200,000	1	.....	432,000	Jan.. 1899	.04
61	Commonwealth, z., pref.	Mo ..	500,000	100,000	5	30,000	50,000	June. 1900	.05
62	Consolidated Gold Mines	Colo..	1,000,000	1 000,000	1	50,000	60,000	June. 1900	.01
63	Consolidation Coal	Md...	10,250,000	102,500	100	205,000	5,921,650	Feb.. 1900	2.00
64	Con. Mercer Gold Mines.	Utah.	5,000,000	1,000,000	5	75,000	1,441,000	April. 1900	.12½
65	Cons. Zinc & Lead, pf.	Mo...	400,000	400,000	1	8,000	8,000	Jan.. 1900	.20
66	Continental, z.	Mo...	1,500,000	150,000	10	.....	.....	.....	.....
67	Cordell, z. l.	Mo...	300,000	60,000	5	18,000	21,000	June. 1900	.05
68	Cripple Creek Con., g.	Colo..	2,000,000	2,000,000	1	160,000	160,000	Mar.. 1900	.08
69	Cœsus, g.	Cal..	1,000,000	190,000	5	45,600	93,100	June. 1900	.06
70	Crowned King, g. s. l.	Ariz .	6,000,000	600,000	10	.....	242,760	May.. 1899	.02
71	Dalton & Lark, g. s. l.	Utah.	2,500,000	2,500,000	1	.....	87,500	Mar.. 1896	.00½
72	Daly, g.	Utah.	3,000,000	150,000	20	.....	2,925,000	Mar.. 1897	.25
73	Daly West, g.	Utah.	3,000,000	150,000	20	262,500	382,500	June. 1900	.25
74	Damon, g.	Colo..	2,000,000	2,000,000	1	.....	.....	.....	.....
75	Deadwood-Terra, g.	S. D..	5,000,000	200,000	25	.....	1,350,000	May.. 1898	.15
76	Deer Trail Con., g.	Wash	3,000,000	3,000,000	1	.....	55,000	Dec.. 1899	.00½
77	De Lamar, g. s.	Idaho	2,000,000	400,000	5	48,000	2,394,000	May . 1900	.12
78	Della S., g.	Colo .	1,000,000	1,000,000	1	.....	60,000	Jan .. 1897	.01
79	Delta, l. z.	Mo...	100,000	100,000	1	5,370	9,470	June. 1900	.01
80	Denver & Cripple C'k, g.	Colo..	1,000,000	1,000,000	1	10,625	10,625	June. 1900	.01⅝
81	Desloge Con., l.	Mo..	1,000,000	100,000	10	20,000	70,000	May.. 1900	.20
82	Dixie, g.	Utah.	125,000	125,000	1	10,000	10,000	April. 1900	.02
83	Doe Run, l.	Mo...	500,000	5,000	100	15,000	105,000	June. 1900	.50
84	Ducktown, c. i. sul. (ord).	Tenn.	374,000	7,480	50	.....	95,744	Dec.. 1899	9.60
85	Ducktown (founder).	Tenn.	1,000	200	5	.....	41,160	Dec.. 1899	102.00
86	Dutch, g.	Cal ..	1,500,000	130,000	10	.....	39,000	Feb.. 1898	.05
87	Eldorado, g.	Cal..	1,000,000	100,000	10	.....	10,000	July.. 1899	.10
88	Elkhorn, New, s. l.	Colo..	437,500	87,500	5	.....	1,325,000	June. 1898	.48
89	Elkton Con., g.	Colo..	3,000,000	2,500,000	1	158,750	873,961	June. 1900	.03
90	El Paso, g. s.	Colo..	900,000	900,000	1	.....	12,393	Jan.. 1898	.01
91	Empire State-Idaho.	Idaho	1,000,000	98,514	10	206,879	524,917	July.. 1900	.30
92	Enterprise, s. l.	Colo..	500,000	500,000	1	.....	900,000	Sept.. 1898	.05
93	Fanny Rawlings, g. s.	Colo..	1,000,000	1,000,000	1	.....	20,000	Aug.. 1899	.01
94	Favorite, g.	Colo..	1,200,000	1,200,000	1	48,000	48,000	April. 1900	.04
95	Federal Steel, pf.	U. S..	100000,000	532,610	100	4,127,727	5,725,587	July.. 1900	1.75
96	Federal Steel, com.	U. S..	100000,000	464,843	100	1,743,161	1,743,161	Mar.. 1900	2.50
97	Fern, g.	B.Col	200,000	200,000	1	.....	10,000	Jan .. 1898	.05
98	Ferris-Haggarty, c.g.s.	Wyo.	1,000,000	1,000,000	1	.....	5,000	Feb.. 1899	.00½
99	Florence, s.	Mont.	2,500,000	440,000	5	22,000	252,000	April. 1900	.05
100	Frisco Con., l. s.	Idaho	2,500,000	500,000	5	.....	920,000	Nov.. 1899	.25
101	Galena, s. l. g.	Utah.	1,000,000	100,000	10	.....	71,000	Sept. 1897	.05
102	Garfield Con., g.	Colo..	1,200,000	1,200,000	1	.....	34,000	May.. 1899	.01
103	Geyser-Marion, g.	Utah.	1,500,000	300,000	5	.....	96,000	Sept.. 1898	.02
104	Gold Coin of Victor, g.	Colo..	1,000,000	1,000,000	1	120,000	480,000	June. 1900	.02
105	Gold Deposit, g.	Colo..	500,000	500,000	1	10,000	10,000	Mar.. 1900	.02
106	Gold & Globe, g.	Colo .	750,000	750,000	1	.....	51,625	July.. 1898	.00½
107	Gold King, g.	Colo..	1,000,000	1,000,000	1	90,000	180,000	June. 1900	.03
108	Gold Sovereign, g.	Colo..	3,000,000	3,000,000	1	.....	.....	.....	.....
109	Golden Cycle, g.	Colo..	1,000,000	200,000	5	60,000	318,500	June. 1900	.05
110	Golden Eagle, g.	Colo..	500,000	500,000	1	5,000	25,000	June. 1900	.01
111	Golden Fleece, g. s.	Colo..	600,000	600,000	1	.....	569,480	Feb.. 1897	.01
112	Golden Reward, g.	S. D..	1,000,000	100,000	10	.....	155,000	Feb.. 1898	.15
113	Golden Star, g.	Ont..	1,200,000	1,200,000	1	.....	45,500	July.. 1899	.00½
114	Grafton, g.	Colo..	1,000,000	1,000,000	1	.....	10,000	Oct... 1899	.01
115	Grand Central, g.	Utah.	250,000	250,000	1	.....	666,250	Sept.. 1899	.24
116	Grand Gulch.	Ariz..	250,000	240,000	1	9,600	9,600	April. 1900	.01
117	Grass Valley Expl.	Cal...	100,000	30,000	2	37,500	67,500	May.. 1900	.25
118	Greater Gold Belt, g.	Col ..	5,000,000	3,800,000	1	76,000	76,000	June. 1900	.02
119	Gwin, g.	Cal .	1,000,000	100,000	10	5,000	91,500	May.. 1900	.25
120	Hall Mines, Ltd.	B. Col	1,500,000	250,000	5	.....	120,000	May.. 1899	.24
121	Hecla Con.	Mont	1,500,000	30,000	50	.....	2,190,000	Dec.. 1898	.50
122	Hidden Treasure, g.	Cal..	$500,000	360,000	$1	.....	$3,600	July.. 1899	.01
123	Holy Terror, g.	S. D..	500,000	500,000	1	$5,000	172,000	Jan.. 1900	.01
124	Home, g.	Colo..	50,000	50,000	1	75,000	75,000	June. 1900	.50
125	Homestake, g.	S. D..	21,000,000	210,000	100	630,000	8,773,750	June. 1900	.50
126	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	20,000	5,270,000	June. 1900	.05
127	Idaho, g.	Idaho	1,000,000	1,000,000	1	8,188	8,188	April. 1900	.01
128	Idaho, s. l.	B.Col	500,000	500,000	1	.....	292,000	Jan.. 1899	.05½
129	Independence Town & M	Colo..	1,250,000	1,250,000	1	50,000	50,000	June. 1900	.01
130	International, z.	Mo...	1,000,000	1,000,000	1	26,427	26,427	July.. 1900	.01
131	Iowa, g. s. l.	Colo..	1,666,667	1,666,667	1	39,334	136,834	June. 1900	.00½
132	Iron Mountain, g. s. l. i.	Mont.	5,000,000	500,000	10	.....	507,500	April. 1898	.02
133	Iron Silver, s l.	Colo..	10,000,000	500,000	20	.....	2,500,000	April. 1889	.20
134	Isabella, g.	Colo..	2,250,000	2,250,000	1	135,000	675,000	June. 1900	.03
135	Jack Pot, g.	Colo..	1,250,000	1,250,000	1	.....	75,000	Dec.. 1899	.06
136	Jamison, g.	Cal ..	3,900,000	390,000	10	.....	50,700	April. 1899	.10
137	Keystone, g.	Colo..	1,500,000	1,500,000	1	.....	35,000	Mar.. 1894	.01½
138	Klondike Bonanza, Ltd.	Klond	750,000	52,750	5	.....	12,000	Aug.. 1899	.24
139	Lake Superior Iron.	Mich.	2,100,000	84,000	25	.....	2,132,000	Feb.. 1899	1.00
140	Last Chance, s. l.	B.Col	500,000	500,000	1	.....	45,000	Apr.. 1899	.05
141	Last Dollar, g.	Colo..	1,500,000	1,500,000	1	60,000	90,000	July.. 1900	.02
142	Le Roi, g.	B.Col	5,000,000	200,000	5	.....	1,305,000	Nov.. 1899	1.20
143	Lexington, g.	Colo..	1,500,000	1,500,000	1	.....	.....	.....	.....
144	Lillie, g.	Colo..	1,250,000	250,000	5	45,117	349,300	April. 1900	.05
145	Little Tiger, g.	Cal...	500,000	500,000	1	15,000	47,500	Feb.. 1900	.01½
146	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	120,000	1,730,000	July.. 1900	.05
147	Marion Con., g.	Colo..	5,000,000	500,000	10	.....	300,000	May.. 1899	.01
148	Mary McKinney, g.	Colo..	1,000,000	1,000,000	1	90,000	120,000	April. 1900	.06
149	Maryland Coal, pf.	Md...	1,885,005	18,850	100	37,700	584,319	June. 1900	2.00
150	Matoa, g.	Colo..	1,000,000	1,000,000	1	.....	25,000	Dec.. 1898	.02½
151	Missouri Zinc Fields, pf.	Mo...	400,000	16,000	25	16,573	31,885	April. 1900	.16
152	Modoc, g. s.	Colo..	500,000	500,000	1	30,000	175,000	June. 1900	.01
153	Mollie Gibson, s. l.	Colo..	5,000,000	1,000,000	5	.....	4,080,000	Jan.. 1895	.05
154	Monarch, g.	Colo..	1,000,000	1,000,000	1	120,000	120,000	April. 1900	.12
155	Montana Coal & Coke.	Mont.	5,000,000	200,000	25	60,000	60,000	April. 1900	.30
156	Montana, Ltd., g. s.	Mont.	3,300,000	657,128	5	.....	453,700	April. 1899	.12
157	Montana Ore Purchas'g.	Mont.	2,500,000	80,000	25	160,000	1,520,000	May.. 1900	1.00
158	Montreal, g.	Colo..	1,000,000	1,000,000	1	.....	7,500	Nov.. 1898	.00¼
159	Monument, g.	Colo..	300,000	300,000	1	.....	18,124	Nov.. 1899	.01
160	Moon-Anchor Con., g.	Colo..	1,750,000	600,000	1	.....	261,000	Nov.. 1898	.07½
161	Moose, g.	Colo..	600,000	600,000	1	.....	186,000	Feb.. 1896	.01
162	Morning Star Drift, g.	Cal...	240,000	2,400	100	.....	847,200	Nov.. 1899	10.00
163	Morse, g.	Colo..	1,250,000	1,250,000	1	.....	215,650	May.. 1899	.12
164	Mountain Beauty, g.	Colo..	2,000,000	2,000,000	1	.....	.....	.....	.....
165	Mountain Copper.	Cal ..	6,250,000	250,000	25	660,000	1,833,750	April. 1900	2.64
166	Mt. Rosa, g.	Colo..	1,000,000	1,000,000	1	.....	75,000	Dec.. 1899	.04
167	Mt. Shasta, g.	Cal...	100,000	20,000	5	.....	6,000	May.. 1899	.30
168	Moulton, g.	Mont.	2,000,000	400,000	5	.....	500,000	Oct... 1899	.05
169	Napa Con., q.	Cal ..	700,000	100,000	7	50,000	1,090,000	July.. 1900	.10
170	National Lead, com.	U. S..	15,000,000	149,054	100	149,054	1,341,486	Mar.. 1900	1.00
171	National Lead, pf.	U. S .	15,000,000	149,040	100	521,640	10,057,640	June. 1900	1.75
172	New Central Coal.	Md...	1,000,000	50,000	20	20,000	490,000	April. 1900	.40
173	New Idria, q.	Cal...	500,000	100,000	5	60,000	230,000	July.. 1900	.20
174	N. J. & Mo., z.	Mo...	250,000	2,500	100	6,000	6,000	May.. 1900	2.00
175	New York, Zinc.	Mo...	700,000	28,000	25	.....	6,500	Oct... 1899	.25
176	N.Y.& Hon Rosario, s.g.	C. A..	1,500,000	150,000	10	90,000	1,252,000	June. 1900	.10
177	North Star Mines.	Cal ..	5,000,000	250,000	10	.....	50,000	Nov.. 1899	.20
178	Nugget, g.	Colo..	625,000	1,250,000	½	.....	35,000	Aug.. 1898	.00½
179	Okanogan, g.	Wash	62,500	1,250,000	5	.....	3,125	Oct... 1899	.00¼
180	Old Colony Zinc & Sm.	Mo...	1,100,000	68,329	10	33,332	33,332	April. 1900	.25
181	Omega, g.	Colo..	1,500,000	1,212,550	1	18,188	18,188	June. 1900	.01½
182	Ontario, s. l.	Utah.	15,000,000	150,000	100	90,000	13,662,500	April. 1900	.30
183	Orphan Belle, g.	Colo..	1,000,000	1,000,000	1	.....	197,899	Dec.. 1899	.09
184	Original Empire, g.	Cal...	5,000,000	50,000	100	.....	530,000	Oct... 1899	1.00
185	Osceola, c.	Mich.	2,500,000	93,000	25	279,000	3,359,500	June. 1900	3.00
186	Parrot, c.	Mont.	2,300,000	229,850	10	1,034,325	4,049,050	July.. 1900	1.50
187	Pennsylvania Coal.	Pa....	5,000,000	190,000	50	.....	4,050,000	May.. 1899	8.00
188	Pennsylvania Con, g.	Cal...	5,150,000	51,500	100	25,750	161,325	May.. 1900	.10
189	Pennsylvania Steel, pf.	Pa. ..	1,500,000	15,000	100	52,500	78,750	July.. 1900	1.75
190	Petro, g.	Utah.	1,000,000	200,000	5	.....	32,000	Oct... 1899	.02½
191	Pharmacist Con., g.	Colo..	1,500,000	1,500,000	1	.....	84,000	Jan.. 1895	.01
192	Pinnacle, g.	Colo..	2,000,000	2,000,000	1	.....	.....	.....	.....
193	Pioneer, g.	Cal...	1,000,000	100,000	10	.....	62,500	Mar.. 1899	.12½
194	Pittsburg Coal, pf.	Pa. ..	32,000,000	308,000	100	1,078,000	1,078,000	April. 1900	1.75
195	Plumas Eureka, g.	Cal ..	1,406,250	140,625	10	84,375	2,797,544	April. 1900	.60
196	Portland, g.	Colo..	3,000,000	3,000,000	1	390,000	2,947,080	June. 1900	.02
197	Princess, g.	Colo..	1,000,000	1,000,000	1	.....	45,000	May . 1896	.01
198	Prince Albert, g.	Colo..	3,000,000	3,000,000	1	.....	.....	.....	.....
199	Queen Bess Propr., s. l.	B.Col	500,000	100,000	5	.....	25,000	July.. 1899	.12½
200	Quicksilver, pref.	Cal...	4,300,000	43,000	100	21,500	1,866,911	July.. 1900	.50
201	Quincy, c.	Mich.	2,500,000	100,000	25	500,000	11,570,000	Feb.. 1900	5.00
202	Rambler & Cariboo, s. l.	B.Col	1,250,000	1,250,000	1	33,750	105,000	Mar.. 1900	.01
203	Reco, s. l.	B.Col	1,000,000	1,000,000	1	.....	297,500	Jan.. 1898	.10
204	Republic Con., g.	Wash	3,500,000	3,500,000	1	105,000	382,500	Mar.. 1900	.01
205	Republic Iron & Steel, pf	U. S..	25,000,000	212,570	100	743,994	1,587,989	July.. 1900	1.75
206	Reward, g.	Cal ..	1,000,000	100,000	10	.....	20,000	Aug . 1899	.20
207	Russell-Irwin, z.	Mo...	250,000	25,000	10	.....	15,000	Oct... 1899	.10
208	Sacramento, g.	Utah.	5,000,000	1,000,000	5	.....	138,000	Oct... 1899	.00½
209	St. Joseph, l.	Mo...	3,000,000	300,000	10	75,000	2,972,000	June. 1900	.50
210	Seventy-Six, g. s.	Colo..	1,000,000	200,000	5	.....	2,950	Mar.. 1898	.01
211	Santa Rosalia, g.s.	Cal...	100,000	100,000	1	.....	135,000	Sept.. 1899	.05
212	Silver King, g. s. l.	Utah.	300,000	150,000	20	450,000	2,900,000	June. 1900	.50
213	Small Hopes, s.	Colo..	5,000,000	250,000	20	.....	3,325,000	Feb.. 1899	.10
214	Smuggler, s. l. z.	Colo..	1,000,000	1,000,000	1	330,000	1,515,000	June. 1900	.03
215	South Eureka, g.	Cal ..	1,500,000	300,000	5	.....	12,000	May.. 1898	.04
216	South Swansea, s. l.	Utah.	150,000	150,000	1	.....	165,000	Oct... 1899	.05
217	Specimen, g.	Colo..	1,200,000	1,200,000	1	.....	.....	.....	.....
218	Squaw Mountain, g.	Colo..	2,000,000	2,000,000	1	.....	10,000	Nov.. 1899	.00½
219	Standard Con., g. s.	Cal...	2,000,000	200,000	10	40,000	3,939,226	May.. 1900	.10
220	Standard, g.	Idaho	500,000	500,000	1	.....	1,745,000	April. 1899	.06
221	Stratton's Independ'ce.	Colo..	5,500,000	1,000,000	5	960,000	1,920,000	June. 1900	.48
222	Strong, g.	Colo..	2,500,000	2,500,000	1	150,000	1,000,000	June. 1900	.01
223	Swansea, s. l.	Utah.	500,000	100,000	5	40,000	241,500	June. 1900	.05
224	Tamarack, c.	Mich.	1,500,000	60,000	25	300,000	6,570,000	June. 1900	7.00
225	Tomboy, g.	Colo..	1,500,000	300,000	5	72,000	884,000	June. 1900	.24
226	Touraine, g.	Colo..	1,250,000	1,250,000	1	87,500	87,500	April. 1900	.07
227	Union, g.	Colo..	1,250,000	1,250,000	1	.....	82,744	June. 1896	.01
228	Union Leasing.	Colo..	1,000,000	1,000,000	1	.....	336,000	July.. 1895	.04
229	Union, z. l.	Kas..	500,000	500,000	1	5,000	5,000	June.. 1900	.01
230	United, z. l., pref.	Mo...	6,000,000	240,000	25	12,729	15,395	April. 1900	.50
231	United Verde, c.	Ariz..	3,000,000	300,000	10	975,000	1,837,560	June. 1900	.75
232	Utah, g.	Utah.	1,000,000	100,000	10	.....	179,000	Jan.. 1899	.02
233	Victor, g.	Colo..	1,000,000	200,000	5	.....	1,155,000	Dec.. 1898	.50
234	Vindicator, Con., g.	Colo..	1,500,000	1,065,000	1	106,500	411,000	April. 1900	.05
235	War Eagle Con., g. s. c.	B.C..	2,000,000	1,750,000	1	52,500	545,250	Feb.. 1900	.01½
236	What Cheer, z.	Mo...	225,000	22,500	10	9,000	11,250	May.. 1900	.20
237	Wolverine, c.	Mich.	1,500,000	60,000	25	120,000	390,000	April. 1900	2.00
238	Work, g.	Colo..	1,500,000	1,500,000	1	.....	.....	.....	.....
239	Yellow Aster, g.	Cal...	1,000,000	100,000	10	100,000	419,416	July.. 1900	.20
240	Ymir, g.	B.Col	1,000,000	125,000	5	.....	30,000	Nov.. 1899	.24
241	Zenobia, g.	Colo..	1,000,000	1,000,000	1	.....	10,000	Feb.. 1893	.01

G., Gold. S., Silver. L., Lead. C., Copper. Z., Zinc. Q., Quicksilver. I., Iron. This table is corrected up to July 2d. Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT PRICES.

	Cust. Meas.	Price.
Abrasives—		
Carborundum, f.o.b. Niagara Falls, Powd., F. FF. FFF	lb.	$0.10
Minute No. 1	"	.15
No. 15	"	1.00
Corundum, N. C.	"	.07@.10
Chester, Mass.	"	.04½@.05
Crushed Steel, f. o. b. Pittsburg	"	.05½
Emery, Turkish flour, in kegs	"	.03
Grains, in kegs	"	.04½@.05
Naxos flour, in kegs	"	.03
Grains, in kegs	"	.05
Chester flour, in kegs.	"	.03
Grains, in kegs	"	.04½@.05
Peekskill flour, in kegs	"	.01¾
Grains, in kegs	"	.02¾
Crude, ex-ship, N. Y.:		
Kuluk (Turkey)	lg. ton	22.00@24.00
Abbott (Turkey)	"	26.50@30.00
Naxos (Greek) h. gr.	"	32.00
Pumice Stone, Am. powd.	lb.	.01½@.02
Italian, powdered	"	.01½
Lump, per quality	"	.04@.40
Rottenstone, ground	"	.02¼@.03
Lump, per quality	"	.05@.14
Rouge, per quality	"	.10@.30
Steel Emery, f.o.b. Pittsburg	"	.07
Acids—Acetic, 30% pure	100 lbs.	3.50
30% ch. pure	"	6.00
80% pure	"	7.50
Benzoic, English	oz.	.12½
German	lb.	.46
Boracic, cryst.	"	.11
Powdered	"	.11½
Carbolic, crude, 60%	gal.	.35
Cryst, 37% drums	lb.	.20
Liquid, 95%	gal.	.45
Carbonic, liquid gas	lb.	.12½
Chromic, crude	"	.20
Chem. pure	"	.50
Hydrochloric, ch. pure.	"	.07
Hydrofluoric, 36%	"	.03
48%	"	.05
Best	"	.25
Nitric, chem. pure	"	.09
Sulphuric, chem. pure	"	.07
Sulphurous, liquid anhy.	"	.08
Tartaric, cryst.	"	.32
Powder	"	.32½
Alcohol—Grain	gal.	2.37
Refined wood, 95@97%	"	.75@.80
Purified	"	1.20
Alum—Lump	100 lbs.	1.75
Ground	"	1.85
Powdered	"	3.00
Chrome, com'l	"	2.75@3.00
Aluminum—Nitrate	lb.	1.50
Oxide, com'l, common	"	.06½
Best	"	.20
Pure	"	.80
Hydrated	100 lbs.	2.60
Sulphate, pure	"	1.50@1.75
Com'l	"	1.15@1.30
Ammonia—Aqua, 16°	lb.	.03
18°	"	.03¼
20°	"	.03¾
26°	"	.05½
Ammonium—		
Bromide, pure	"	.52@.55
Carbonate lump	"	.08¼@.08¾
Powdered	"	.09¼@.09½
Muriate, gran.	"	.06¼
Lump	"	.09¼
Nitrate, white, pure (99%)	"	.10½
Phosphate, com'l	"	.12
Chem. pure	"	.60
Antimony—Glass	"	.30@.40
Needle, lump	"	.05½@.06
Powdered, ordinary	"	.05¾
Best	"	.08½
Oxide, com'l white, 95%	"	.09½
Com'l white, 99%	"	.12
Com'l gray	"	.07
Sulphuret, com'l	"	.16
Arsenic—White	"	.04¾
Red	"	.07¼@.07¾
Asphaltum—		
Ventura, Cal.	sh. ton	32.00
Cuban	lb.	.01½@.03¼
Egyptian, crude	"	.05½@.06
Trinidad, refined.	lg. ton	30.00@35.00
San Valentino	"	15.00
Seyssel (French) mastic.	sh. ton	21.00
Gilsonite, Utah, ordinary	lb.	.03
Select	"	.03¾
Barium—Carbonate, Lump, 80@90%	sh. ton	25.00@27.50
92@98%	"	26.00@29.00
Powdered, 80@90%	lb.	.01¾@.02
Chloride, com'l	"	.02@.02¼
Chem. pure cryst	"	.05
Nitrate, powdered	"	.06
Oxide, com'l, hyd. cryst	"	.18
Hydrated, pure cryst.	"	.25
Pure, powd.	"	.27
Sulphate	"	.01
Barytes—Am. Cr., No. 1.	sh. ton	9.00
Crude, No. 2	"	8.00
Crude, No. 3	"	7.75
Am. Floated	"	14.50@17.50
German, gray	"	14.50
Snow white	"	17.50
Bauxite—Ga. mines: 1st grade	lg. ton.	5.00@5.10
Second grade	"	4.25@4.50
Ala., f.o.b., 1st grade	"	5.00
Second grade	"	3.85
Bismuth—Oxide, hydr.	lb	2.25@2.30
Subnitrate	"	1.30@1.35
Bitumen, "B"	"	.03½
"A"	"	.05
"A" and "B"	"	.04½
Bone Ash	"	03¼@.03½

	Cust. Meas.	Price.
Borax	lb.	$.07¼@.07½
Bromine—Bulk	"	.45
Cadmium—Metallic	"	1.40
Acetate, pure white	100 lbs.	1.00
Sulphate	"	2.00@2.50
Calcium—Acetate, gray.	"	1.55
" brown	"	1.05
Carbide, ton lots, f. o. b. Niagara Falls, N. Y.	sh. ton	75.00
Carbonate, ppt.	lb.	.05
Chloride, com'l	100 lbs.	.90
Best	"	1.00
Sulphite	lb.	.05
Cement—		
Portland, Am.	400 lbs.	bbl. 1.50@2.00
Belgium	"	" 1.95@2.20
English	"	" 2.45@2.55
German	"	" 2.30@2.70
"Rosendale," 300 lbs.	"	" .95
Sand cement, 400 lbs.	"	" 1.55@1.95
Slag cement, imported.	"	" 1.65
Ceresine—		
Orange and Yellow	lb.	.11½
White	"	.13½
Chalk—Lump, bulk	sh. ton	2.15
Ppt. per quality	lb.	.04¼@.06½
Chlorine—Liquid	"	.28
Water	"	.15
Chrome Ore—		
(50% chrome) ex-ship	lg. ton	23.00
Sand	"	35.00
Bricks, f.o.b., Pittsburg.	M	175.00
Clay, China—Am. com., ex-dock, N. Y.	lg ton	8.00
Am. best, ex-dock, N. Y.	"	9.00
English, common	"	12 00
Best grade	"	17 00
Fire Clay, ord.	sh. ton	4.00
Best	"	5.75
Slip Clay	"	4.00
Coal Tar Pitch	gal.	.08
Cobalt—Carbonate	lb.	1.75
Nitrate	"	1.50
Oxide—Black	"	2.26@2.36
Gray	"	2.28@2.40
Smalt, blue ordinary	"	.25
Best	"	.30
Copperas	100 lbs.	72½
Copper—Carbonate	lb.	.18
Chloride	"	.25
Nitrate, crystals	"	.35
Oxide, com'l	"	.19
Cream of Tartar—Crys.	"	.23½
Granulated	"	.22½
Powdered	"	.23½
Cryolite	"	.06½
Explosives—		
Blasting powder, A. 25 lb. keg		2.50
Blasting powder, B.	"	1.25
"Rackarock," A.	lb.	.25
"Rackarock," B.	"	.18
Judson R.R. powder	"	.10
Dynamite (20% nitro-glycerine)	"	.13
(30% nitro-glycerine)	"	.14
(40% nitro-glycerine)	"	.15
(50% nitro-glycerine)	"	.16½
(60% nitro-glycerine)	"	.18
(75% nitro-glycerine)	"	.21
Glycerine for nitro (32 2-10° Be.)	"	.13¼
Feldspar—Ground	sh. ton	8.00@9.00
Fluorspar—In bulk.		
Am. lump, 1st grade	"	12.40
2d grade	"	11.90
Gravel & crushed, 1st g	"	11.40
2d grade	"	10.90
Ground, 1st grade	"	15.90
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump.	100 lbs.	.75
Powdered	"	.85
Refined lump	"	1.25
Graphite—		
Am. lump, f. o. b. Providence, R. I.	sh. ton	8.00
Am. pulv., f. o. b. Providence, R. I.	"	30.00
German, lump	lb.	.01½
Pulverized	"	.01¾@.02
Ceylon, common	"	.04
Pulverized	"	.05@.08
Italian, pulv.	"	.01¼
Gypsum—Ground	sh. ton	8.00@8.50
Fertilizer	"	7.00
Rock	lg. ton	4.00
English and French	"	14.00@16 00
Infusorial Earth—Ground.		
American, best	"	20.00
French	"	37.50
German	"	40.00
Iodine—Crude	100 lbs.	2.45
Iron—Muriate	lb.	.05
Nitrate, com'l	"	.01½
True	"	.03½
Oxide, pure copperas col	"	.05@.10
Purple-brown	"	.02
Venetian red	"	.01@.01½
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate, white	lb.	.07
Com'l, broken	"	.06½
Brown	"	.05½
Nitrate, com'l	"	.06½
" gran.	"	.8½
Lime—Com., ab. 250 lbs	bbl.	.60
Finishing	"	.70
Magnesite—		
Crude, lump (95%) Greece	lg. ton	7.00@7.50
Calcined (Greece)	sh. ton	17.50
Bricks (Greece)	M.	170.00
Bricks, Am., f.o.b., Pittsburg	M.	175.00
Magnesium—		
Carbonate, light, fine pd	lb.	.03¾

	Cust. Meas.	Price.
Magnesium—Carb.		
Blocks	lb.	$0.06@.09
Chloride, com'l	"	.01¾
Fused	"	.20
Nitrate	"	.60
Sulphate	"	.01@.01¼
Manganese—Crude-pow'd 70@75% binoxide	"	.01¼@.01½
Crude, pow'd 75@85% binoxide	"	.01½@.02½
85@90% binoxide	"	.02½@.03¼
90@95% binoxide	"	.03¾@.05½
Carbonate	"	.16@.20
Chloride	"	.04
Ore, 50%. Foreign	unit	.29
Domestic	"	.30
Marble—Flour	sh. ton	5.50@6.00
Mercury—Bichloride	lb.	.74
Mica—N. Y. gr'nd. coarse	"	.04@.05
Fine	"	.05@.06
Sheets, N. C., 2x4 in.	"	.30
3x3 in.	"	.80
3x4 in.	"	1.50
4x4 in.	"	2.00
6x6 in.	"	3.00
Scrap, f.o.b., Dillsboro, N. C.	sh. ton.	25.00
Mineral Wool—		
Slag, ordinary	sh. ton	20.00
Selected	"	25.00
Rock, ordinary	"	32.00
Selected	"	40.00
Monazite—92%	"	140.00
Nickel—Oxide, No. 1	lb.	1.00
No. 2	"	.60
Sulphate	"	.20@.21
Oils—Black, reduced 29 gr.:		
25@30 cold test	gal.	.09¾@.10¼
15, cold test	"	.10¾@.11¼
Zero	"	.11¾@.12¾
Summer	"	.09¼@.09¾
Cylinder, dark steam ref	"	.08¾@.10¼
Dark filtered	"	.11¾@.16¼
Light filtered	"	.14¾@.17¾
Extra cold test	"	.21¾@.26¾
Gasolene, 86°@90°	"	.16@.21
Naphtha, crude 68@72°	"	9.55
"Stove"	"	.12
Linseed, domestic raw	"	.65@.67
Boiled	"	.69
Calcutta, raw	"	.76
Graphite, lubricating, Am. dry	lb	.10
In oil	"	.12
Axle grease	"	.08½@.10
Wood grease	"	.05@.06
Ozokerite—Foreign	"	.09¼
Paints and Colors—		
Benzine, Samatra	"	.35
Marbled	"	.27
Chrome green, common	"	.05
Extra	"	.12@.15
Best	"	.37
Yellow, common	"	.10
Best	"	.25
Silica Graphite, thick	"	.12
Thinned	gal.	1.15
Lampblack, com'l	lb.	.03
Refined	"	.08
Calcined	"	.12@.20
Fine spirit	"	20@.35
Litharge, Am. powd.	"	.06½
English flake	"	.09½
Glassmakers, Foreign	"	.06½
Metallic, brown	sh. ton	19.00
Red	"	16.00
Ocher, Am. common	"	9.25@10.00
Best	"	21.25@25.00
Dutch, washed	lb.	.04¾
French, washed	"	.01¼@.02½
Orange mineral, Am.	"	.08¾@.08½
Foreign, as to make	"	.09½@.11¼
Paris green, pure, bulk.	"	.12
Red lead, American	"	.06½
Foreign	"	.08¼
Shellac, "D. C."	"	.28
Native	"	.15
Turpentine, spirits	gal.	.46@.46½
Ultramarine, best	lb.	.25
Vermilion, Amer. lead., Quicksilver, bulk	"	.10@.11
Chinese	"	.72
English, imported	"	.85
English, domestic	"	.80
White lead, Am., dry	"	.74
In oil	"	.06¾
English	"	.06½
Whiting, common	100 lbs.	.06½@.08¾
Gilders	"	.40
Zinc white, Am., ex. dry	lb.	.04¾@.05¼
American, red seal	"	.07¼@.07¾
Green seal	"	.07¾@.08
Foreign, red seal, dry	"	.06¼@.06¼
Green seal, dry	"	.06¾@.08¾
Foreign, in oil	"	.10½@.11¾
Potash—Caustic, ord.	"	.04½@.05
Elect. (90%)	"	.06½
Potassium—		
Bicarbonate cryst	"	.07¾
Powdered or gran.	"	.12
Bichromate, Am.	"	.08½
Scotch	"	.09½
Carbonate, hydrated	"	.04¾
Calcined	"	.04
Chromate	"	.35
Cyanide (98@99%)	"	.28@.29
Iodide, bulk	"	2.30
Permanganate, pure cr.	"	.14
Prussiate, yellow	"	.18½@.19
Red	"	.37
Silicate	"	.06
Sulphide, com'l	"	.10
Quartz—(See Silica).		
Rosin—		
Com. strained (280 lbs.)	bbl.	1.55
Best strained	"	3.00
Medium	"	1.75

	Cust. Meas.	Price.
Salt—		
N.Y. com. fine	sh. ton	$2.00
N. Y. agricultural	"	1.50
Saltpeter—Crude	100 lbs.	3.50
Refined	"	4.25
Silica—Best foreign	lg. ton	10 00@11.00
Ground quartz, ord.	sh. ton	6.00@8.00
Best	"	12.00@13.00
Lump quartz	"	2.50@4.00
Glass sand	"	2.75
Silver—Chloride	oz.	.65
Nitrate	"	.40
Oxide	"	.85@1.10
Slate—Ground, black	sh. ton	7.50@8.75
Ground, red and olive.	"	20.00
Sodium—Acetate, com'l.	lb.	.04¾
Bicaromate	"	.06½
Chlorate, com'l	"	.09¼@.09½
Hyposulphite, Am.	100 lbs.	1.70@1.80
German	"	2.10@2.20
Nitrite, 96@98%	lb.	.08
Peroxide	"	.45
Phosphate	"	.02½
Prussiate	"	.14¼
Silicate, conc. com'l	"	.05 .02¼
Sulphate, gran., purl'd.	"	.03
Sulphide	"	.01¾
Sulphite	"	.02½
Tungstate, com'l	"	.35
Pure	"	.50
Strontium—Nitrate	"	.09
Sulphur—Roll	100 lbs.	1.75
Flour	"	1.85
Flowers, sublimed	"	2.05
Talc—N. C., 1st grade	sh. ton	13.75
N. Y., Fibrous	"	8.00@9.00
French, best	100 lbs.	1.25
Italian, best	"	1.75
Tin—Bichloride	lb.	.09½@.10
Crystals	"	.20
Muriate, 36°	"	.09
52°	"	.15
Oxide, white, ch. pure	"	.41
Uranium—Oxide	"	2.25@3.00
Zinc—Metallic, ch. pure	"	07¼@.09¼
Carbonate	"	.15
Chloride	"	.05
Dust	"	.07¼
Sulphate	"	.02@.02⅞

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5 71
Beryllium—Powder	"	5.95
Crystals	"	9.04
Nitrate (N Y.)	oz.	2.00
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.50
Cadmium	kg.	1.90
Calcium	grm.	4.28@5.95
Cerium—Fused	grm.	1.02
Nitrate (N. Y.)	lb.	17.00
Chromium—Fused, Elect.	kg.	5.95
Pure powder 95%	"	1.79
Chem. pure cryst	grm.	.26
Cobalt—(98@99%)	kg.	6.31@7.85
Pure	"	30.94
Didymium—Nitrate (N.Y.)	oz.	3.00
Erbium	grm.	3.09
Nitrate (N. Y.)	oz.	3.00
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	oz.	2.75
Indium	grm	4.05
Iridium—	"	1.43
Lanthanum—Powder	"	4.28
Electrol, in globules	"	9.04
Nitrate (N Y.)	oz.	2.75
Lithium	grm.	2.38
Nitrate (N. Y.)	oz.	.60
Magnesium—In bars	kg.	6.19
In wire	"	9.99
Powdered	"	5.71@6.90
Molybdenum—Fused	grm.	.20
Powder, 95%	kg.	2.62
Niobium	grm.	3.81
Osmium	"	.95
Palladium—Wire	"	.95
Sponge	"	71
Potassium—In balls	kg.	17.85
Rhodium	grm.	2.62
Rubidium—Pure	"	4.76
Ruthenium—Powder	"	2.38
Rutile—Crude	kg.	.43
Selenium—Com'l powder	"	33.32
Sublimed powder	"	42.84
Sticks	"	35.70
Silicium—Com'l	"	28.56
Pure crystals	"	59.50
Sodium (N. Y.)	lb.	.65
Strontium—Electrol	grm.	6.19
Tantalium—Pure	"	3.57
Tellurium—Ch. p. sticks.	kg.	119.00
Powder	"	95.20
Thallium	"	26.18
Thorium—Metallic	grm.	7.85
Nitrate 49@50% (N. Y.)	lb.	5.00
Titanium	kg	47.60
Uranium	"	190.40
Nitrate (N. Y.)	oz.	.25
Vanadium—Fused	grm.	1.19
Wolfram—Fused, elect.	kg.	238.00
Powder, 95@98%	"	1.67
Purest, powder	"	6.43
Yttrium	grm.	3.33
Nitrate (N. Y.)	oz.	3.00
Zirconium—Com'l	kg.	119.00
Nitrate (N. Y.)	lb.	9.00

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to June 9. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Reviews.